

SERVICE
MANUAL

TT 433

marantz®

Model TT 433

Turntable

FEATURES

Front loading, drawer type, full automatic, direct drive, linear tracking with random program, reject, repeat, cueing, backward search and forward search (2-steps speed), speed selector and sensor change selector.

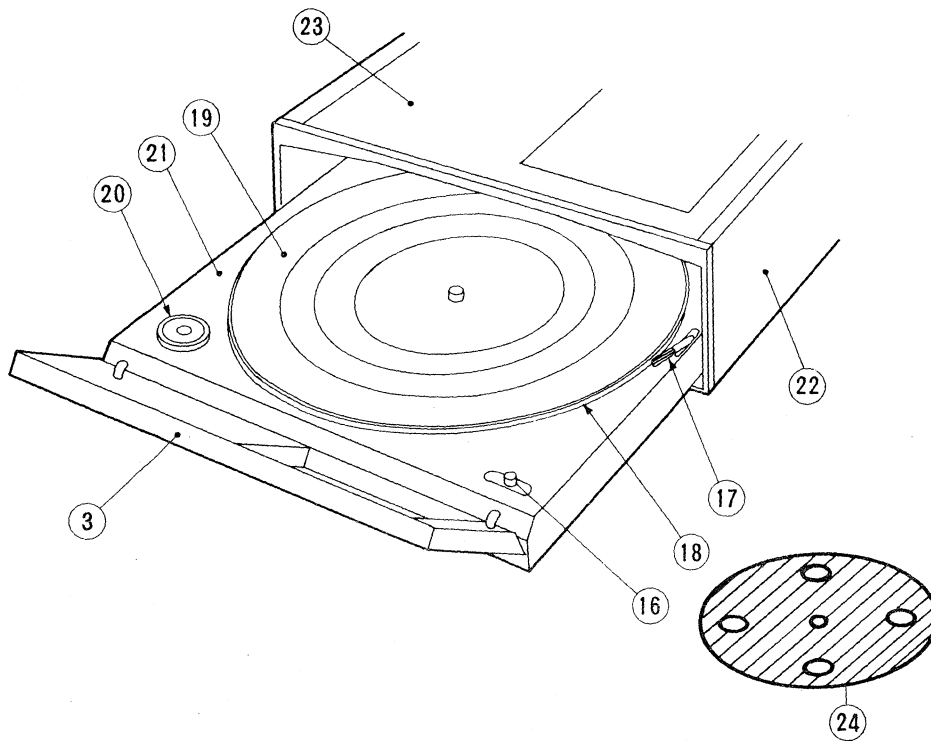
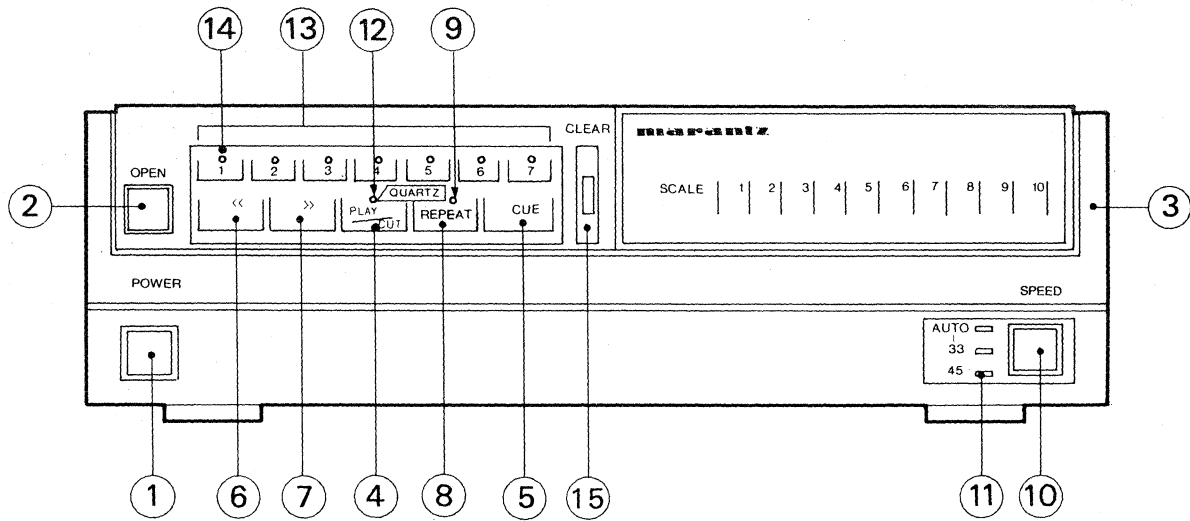
SPECIFICATIONS:

Type	2 speeds, direct drive, linear tracking, fully automatic turntable
Platter	Aluminum alloy die-cast, 295mm diameter
Motor	DC coreless quartz direct drive
Speed	2 speeds; 33-1/3 and 45 rpm
Pitch control range	±3% or more
S/N (DIN B)	60dB or more, Test record: DIN45544, Test equipment: by DIN45500
Wow & Flutter (DIN B)	0.2% or less, Test record: DIN45545, Test equipment: by DIN45507
Tonearm	
Effective length	95±1mm
Cartridge	
Frequency response	20 - 20,000Hz
Output voltage	3 - 10mV at 1kHz, 5.6 cm/sec, Test record: DIN45543
Channel difference	2dB or less at 1kHz, Test record: DIN45543
Channel separation	18dB or more at 1kHz, Test record: DIN45543
Tracking force	1.5 gram±0.3 gram
Stylus tip	0.6 mil diamond stylus
Power source	100/120/220/240V 50/60Hz, 220V 50Hz for Europe, 240V 50Hz for UK and Australia
Power consumption	12W±25%
Dimensions	320(W) x 335(D) x 100(H) mm
Weight	7 kg
Accessories	45 rpm adaptor, 2 pcs of 1-P RCA cords (green and black), masking sheet

NOTE: Nominal Specs represent the design specs; all units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit Specs represent the absolute worst condition which still might be considered acceptable; in no case should a unit perform to less than within any Limit Spec.

Lubrication of the mechanism is not required. However, whenever a unit is brought in for adjustment or repair, always use good common sense ... clean any dust or dirt from mechanical parts and if moving parts do seem to bind, check for dirt. If necessary, add a very fine film of light-weight specially formulated lubricant.

DESIGNATION



- | | | |
|------------------------|-----------------------------|------------------|
| 1 Power Switch Button | 11 Speed Indicator | 21 Cabinet |
| 2 Open Button | 12 Quartz Lock Indicator | 22 Case |
| 3 Front Door | 13 Random Program Button | 23 Dust Cover |
| 4 Play/Cut Button | 14 Random Program Indicator | 24 Masking Sheet |
| 5 Cue Button | 15 Program Clear Button | |
| 6 (<<) Button | 16 Sensitivity Switch | |
| 7 (>>) Button | 17 Stylus Cleaner | |
| 8 Repeat Button | 18 Turntable Platter | |
| 9 Repeat Indicator | 19 Rubber Mat | |
| 10 Speed Change Button | 20 EP Adaptor | |

DISASSEMBLING INSTRUCTION

1. Disassembling Housings (See fig. 1)

- (1) Activate turntable by power switch on.
- (2) Draw-out main cabinet fully by pressing open button.
- (3) Switch off the power by pressing power button.
- (4) Close front door by hand.
- (5) Remove top lid.
- (6) Mount stylus cover and then dismount rubber mat and turntable platter.
- (7) Remove 2 pcs. of screws (A) from C-shaped angle (2).
- (8) Dismount front frame.
- (9) Remove 4 pcs. of screws (B).
- (10) Place turntable unit upside down on the table which surface is soft enough to protect the unit from any damage, and then remove 6 pcs. of screws (C) to dismount side cover.

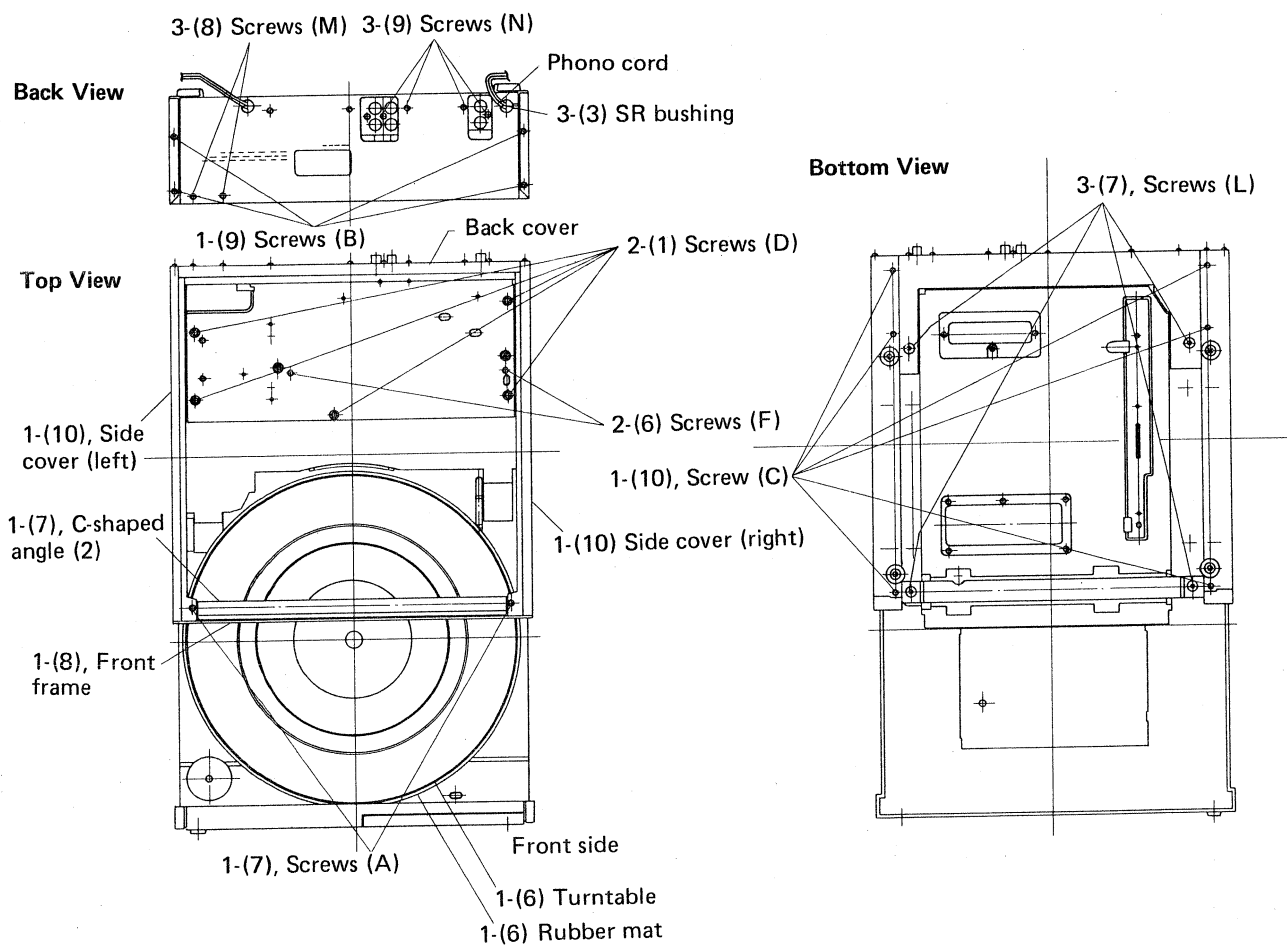


Fig. 1

2. Disassembling tonearm mechanism

- (1) Move tonearm base to the center of guide bar and then remove 5 pcs. of screws (D) from tonearm chassis. (See fig. 1, 2)
- (2) Pulling front edge of the tonearm chassis upward by hand, remove 4 pcs. of screws (E) from top of mechanism cover. (See fig. 3)
- (3) Unsolder soldering point (A) connected to lead wires from tonearm mechanism ass'y and muting circuit ass'y, and then disconnect connector (A) from control PWB ass'y (2). (See fig. 15)
- (4) Dismount tonearm mechanism ass'y. (See fig. 4)
- (5) Dismount tonearm drive motor. (See fig. 4, 5)
 - 1. Take off fastner for lead wires.
 - 2. Peel off fixing tape for lead wires.
 - 3. Remove drive belt for motor.
 - 4. Pull out drive motor.
 - 5. Remove 2 pcs. of rubber caps.
 - 6. Remove pulley.
- (6) Dismount tonearm ass'y. (See fig. 2, 4, 5, 6)
 - 1. Take off hook of rope spring for tonearm ass'y. (See fig. 4)
 - 2. Locate tonearm base at the center of guide bar by hand.
 - 3. Remove 2 pcs. of screws (F) from bottom side of tonearm chassis. (See fig. 1, 2)
 - 4. Holding tonearm base by hand and pull it forward so that tonearm ass'y is remove from the chassis.
 - 5. Pull out guide bar holder. (See fig. 6)
 - 6. Pull out guide bar from tonearm base. (See fig. 6)
- (7) Dismount slit plate ass'y. (See fig. 6)
 - 1. Remove tension coil spring which is mounted between slit plate and tonearm base.
 - 2. Shift slit plate to the left end of the slit, and then pull upward.
- (8) Dismount position sensor PWB ass'y. (See fig. 7)
 - 1. Place tonearm chassis upside down.
 - 2. Remove 2 pcs. of screws (G) from guide plate. (See fig. 7)
 - 3. Remove 2 pcs. of screws (H) from position sensor ass'y. (See fig. 7)
 - 4. Peel off insulation tape.
 - 5. Remove one piece of each screw (I) from an upper PWB and a lower PWB. (See fig. 7)
- (9) Dismount mechanism cover. (See fig. 2)
 - 1. Remove 2 pcs. of pivot screws (J) from left and right.

3. Disassembling back cover.

- (1) Unsolder 4 pcs. of terminals (B) and remove 2 pcs. of screws (K) from terminal cover. (See fig. 15)
- (2) Unsolder a grounding wire of back cover (C) from muting circuit ass'y. (See fig. 15)
- (3) Remove phono cord and SR bushing from back cover. (See fig. 1)
- (4) Disconnect connector (B) connected between back cover PWB and Control PWB (2). (See fig. 15)
- (5) Push down brush into cabinet.
- (6) Place turntable unit onto the table upside down.
- (7) Remove 2 pcs. of screws (L) from back cover so that the cover is disassembled. (See. fig. 1, 15)
- (8) Dismount power transformer. (See fig. 9)
 - 1. After disassembling back cover, remove 2 pcs. of screws (M) from back cover.
 - 2. Disconnect connector (D) for secondary so that power transformer is dismantled. (For 4 voltage versions, unsolder change over switch before disconnect (D).)

Note:

In case of replacement of power transformer only, take step (1) and (8) so that power transformer is dismantled directly.

- (9) Remove 4 pcs. of screws (N) from back cover so that power supply circuit (2) is dismantled. (See fig. 1, 9)
- (10) Remove 2 pcs. of nuts (A) so that power supply circuit (1) is dismantled. (See fig. 9)

Note:

In case of 4 voltage version, change-over switch can be dismantled by removing 2 pcs. of screws (D).

4. Disassembly of bottom plate (See fig. 11)

- (1) Dismount of stopper plate. (See fig. 8, 10)
Follow to step 3-(6), remove 4 pcs. of screws (P) from bottom of cabinet so that stopper plate of left and right can be removed, and then roller (A) can be removed.
- (2) Dismount of power switch. (See fig. 10, 11)
 - 1. Remove 2 pcs. of screws (Q) from bottom plate and clear the crest (A) provided with switch holder.
 - 2. Remove bottom plate ass'y by means of lifting by hand.
 - 3. Remove 3 pcs. of screws (R) from rack (A) so that mechanism portion of power switch is removed. (See fig. 8, 11)
(Carefully remove the mechanism, otherwise switch ball may be remained at bottom plate side.)
 - 4. Releasing latch (B) which holds micro switch, and then push the switch by a small stick or screw driver through square hole so that micro switch and lever can be removed. (See fig. 11)
- (3) Dismount muting circuit ass'y. (See fig. 11)
Remove a nut (B) from PWB and then unsolder (D) so that muting circuit ass'y can be dismantled.
- (4) Dismount control circuit ass'y (2). (See fig. 11)
Remove 2 pcs. of nuts (C) from PWB so that control circuit (2) can be dismantled.

5. Disassembly of cabinet

- (1) Dismount protection cover. (See fig. 16)
 - 1. Follow to step 4-(1), remove a screw (S) from the center of protection cover.
 - 2. Deflect the cover so that the cover is released from crest of cabinet.
- (2) Dismount control circuit ass'y (1). (See fig. 12, 13)
 - 1. Remove 4 pcs. of screws (T) from the circuit (1). (See fig. 12)
 - 2. Dismount 12 pcs. of connectors (E) from back side of the PWB ass'y so that the circuit (1) PWB ass'y (1) can be dismantled. (See fig. 13)
- (3) Dismount main motor. (See fig. 12, 13)
Remove 3 pcs. of screws (U) and 4 pcs. of screws (V) from the PWB ass'y so that the motor can be dismantled. (See fig. 12)
- (4) Dismount mechanism of drawer. (See fig. 12, 13)
Remove 2 pcs. of screws (W) so that the mechanism can be dismantled.
- (5) Dismount sub-motor. (See fig. 13)
 - 1. Remove 3 pcs. of screws (X).
 - 2. Remove a set screw (Y) from worm so that the motor can be dismantled.
- (6) Dismount switch PWB ass'y. (See fig. 13)
Remove 2 pcs. of screws (Z) from the PWB.
- (7) Sensitivity change-over PWB ass'y
Remove 2 pcs. of screws (a) from the PWB. (See fig. 13)
- (8) PTR PWB ass'y. (See fig. 13)
Remove a screw (b) from the PWB.
- (9) Front door ass'y. (See fig. 14)
 - 1. Place the cabinet upside down.
 - 2. Release 3 pcs. of screws (c) fitted to hinge portion of the door ass'y.
- (10) Cover (See fig. 17)
Remove a screw (d) from inside of the door, and then release the latch so that the cover can be dismantled.
- (11) Function control PWB (1) ass'y (See fig. 14)
Remove 4 pcs. of screws (e) from the PWB ass'y.
- (12) Hinge retainer (1) and hinge plate ass'y (2) (See fig. 12)
 - 1. Place the cabinet upside down.
 - 2. Remove a screw (f) from hinge retainer.
- (13) Switch-spring (2) and function control PWB (2) ass'y (See fig. 13)
 - 1. Remove a screw (g) from switch spring.
 - 2. Remove a screw (h) from the PWB.
- (14) Leaf switch ass'y (See fig. 13)
 - 1. Remove 2 pcs. of screw (i) from the hinge angle ass'y.
 - 2. Remove a screw (J) from the switch.

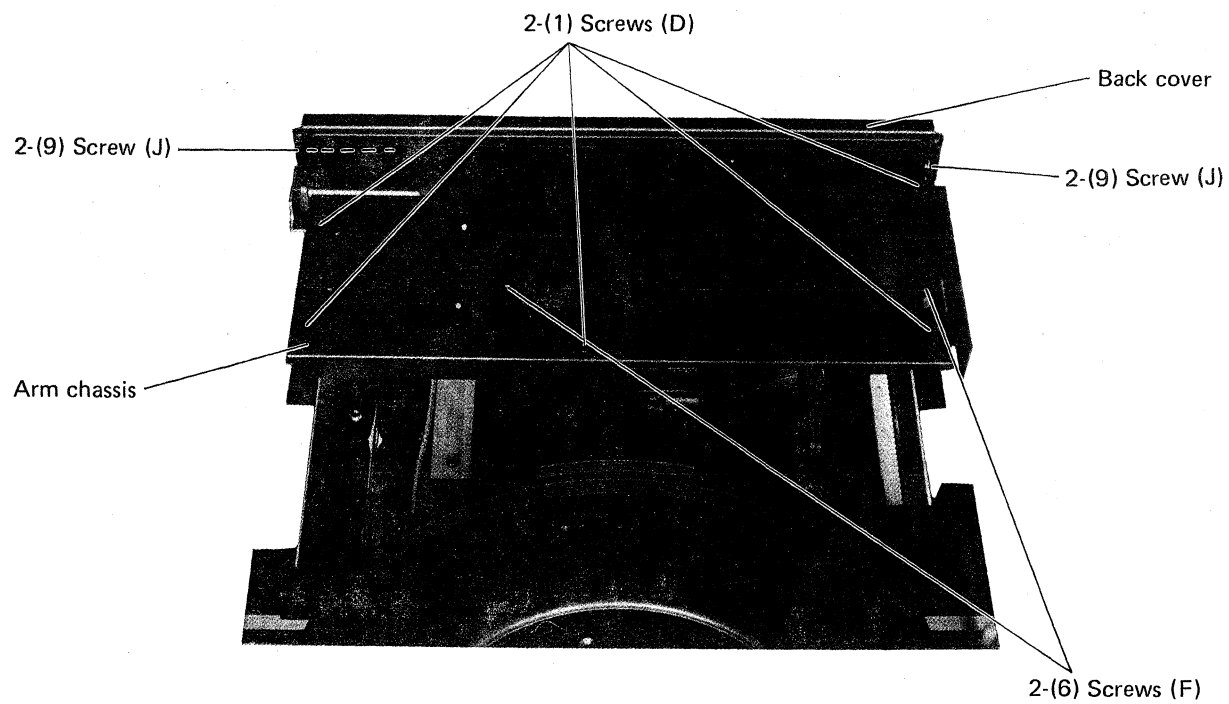


Fig. 2

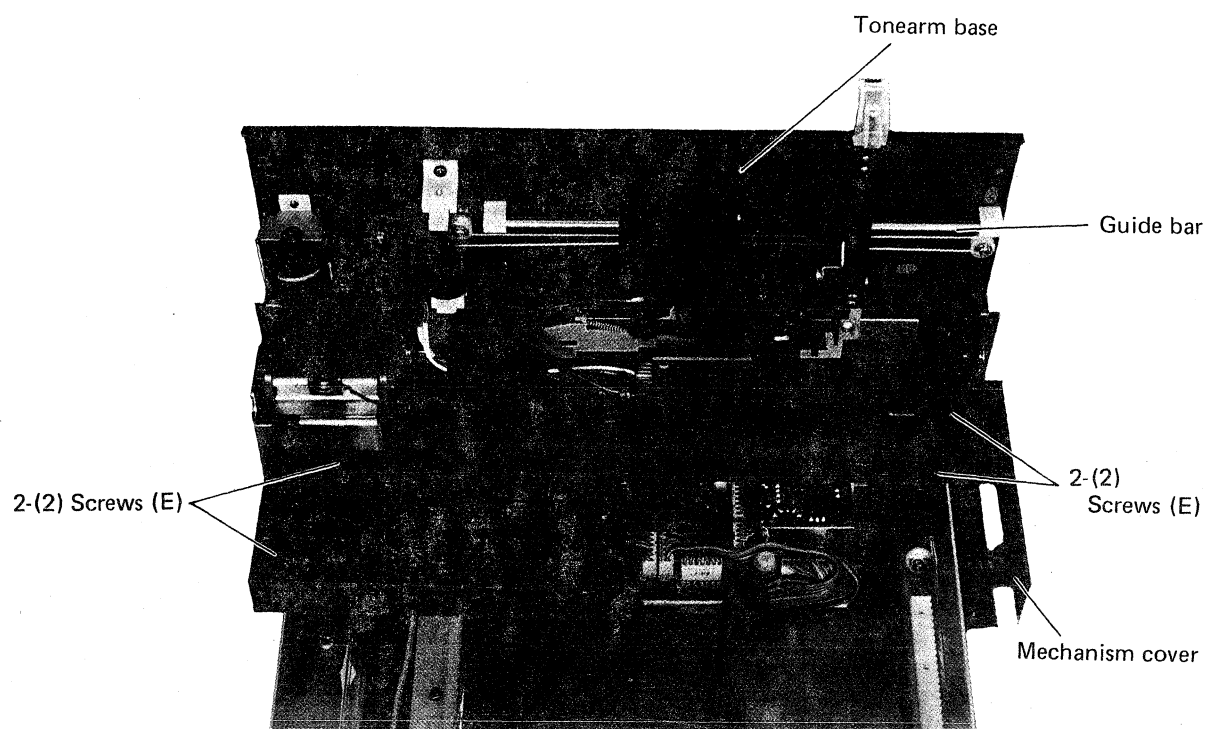


Fig. 3

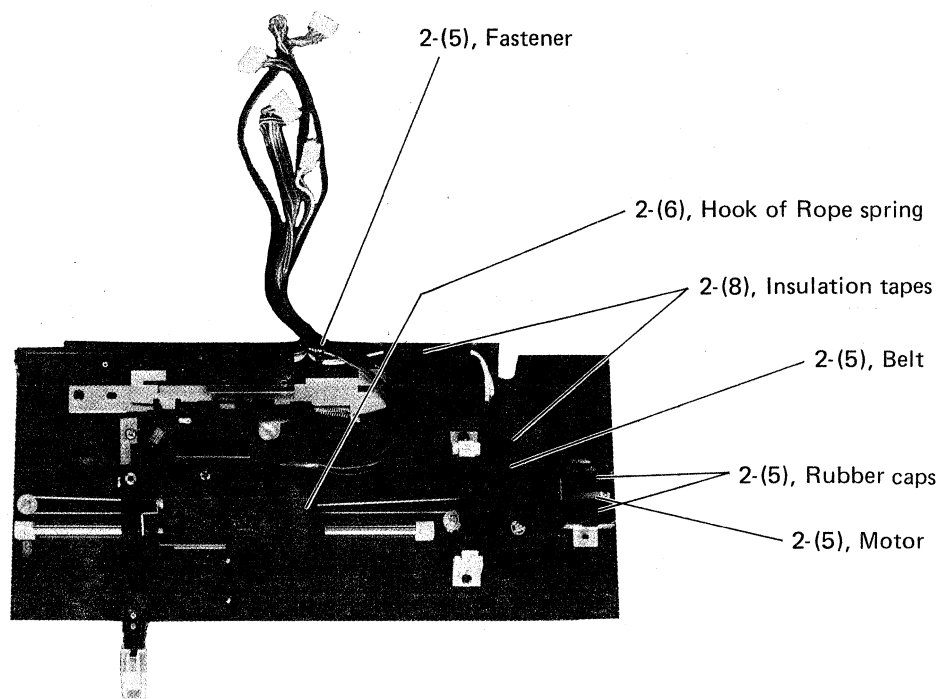


Fig. 4

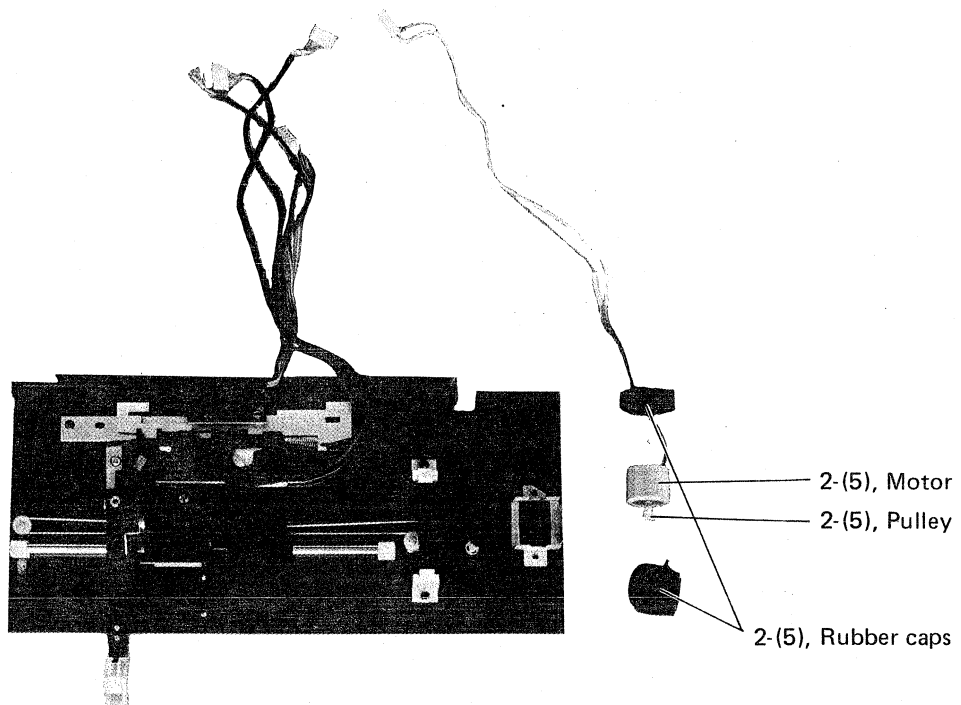


Fig. 5

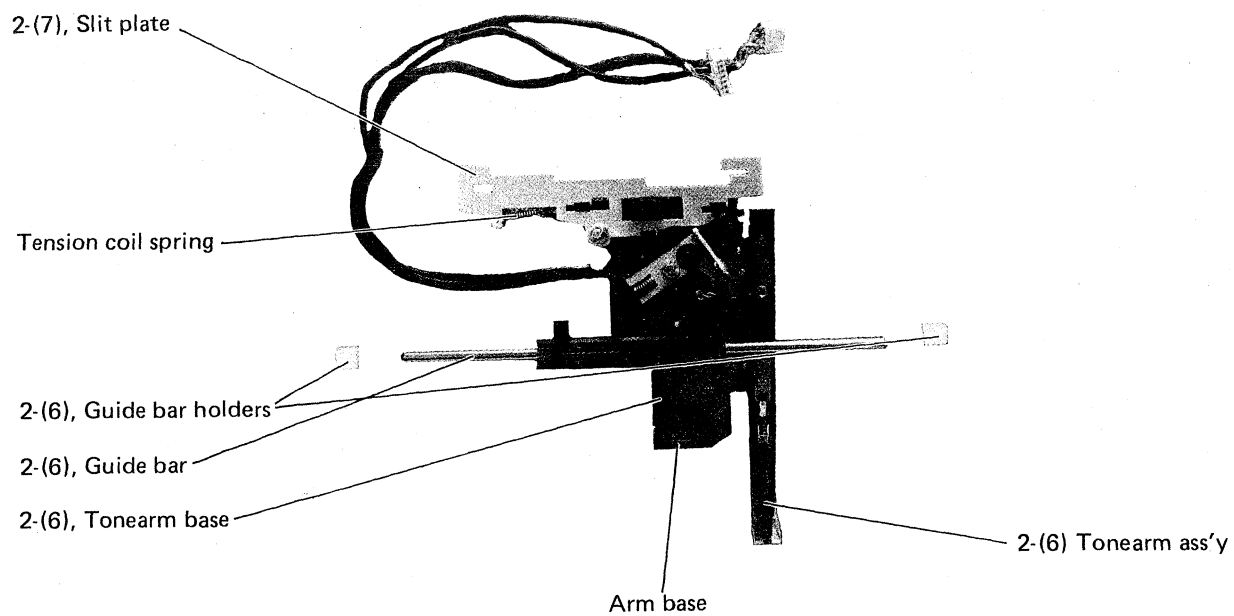


Fig. 6

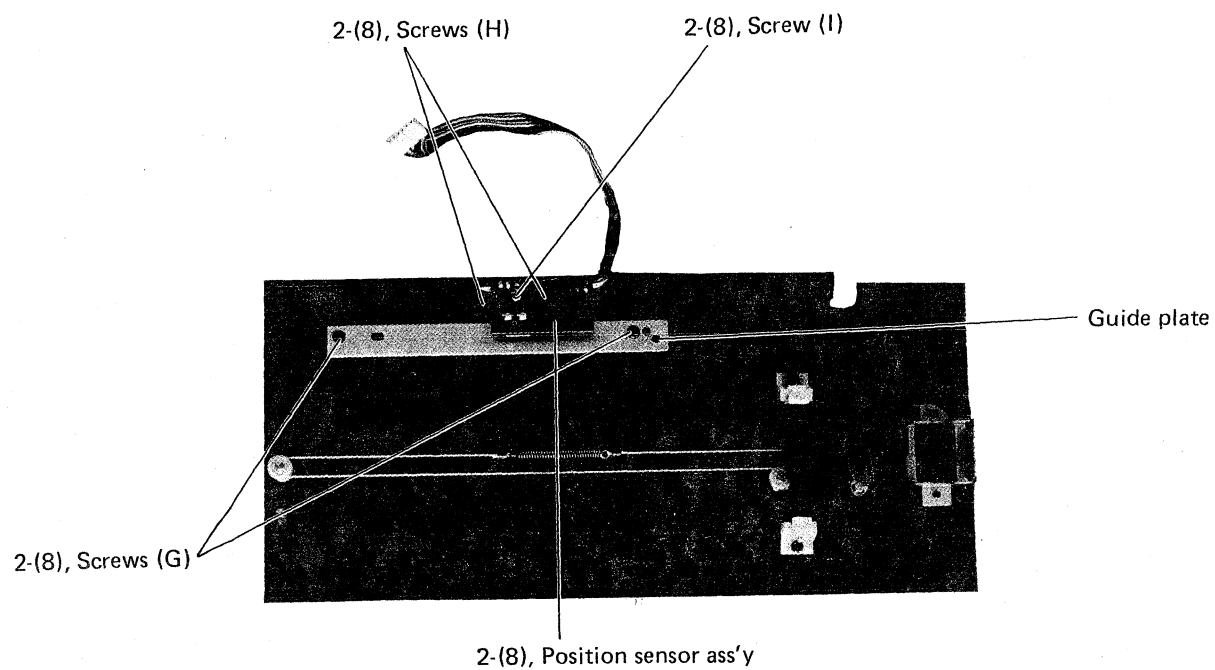


Fig. 7

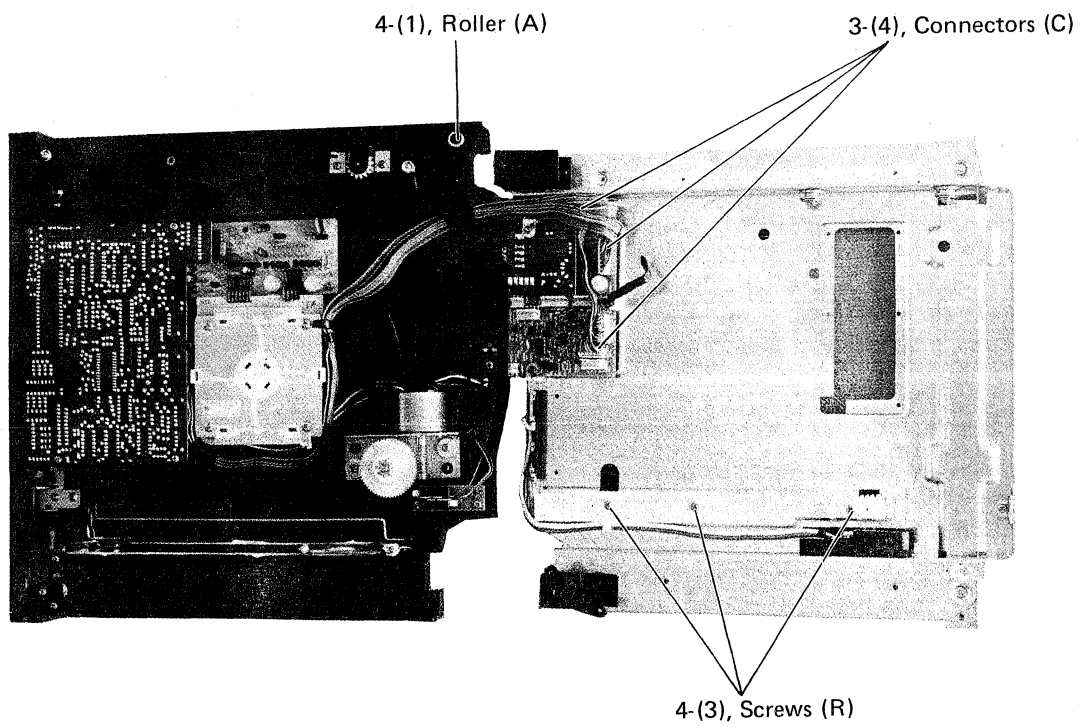


Fig. 8

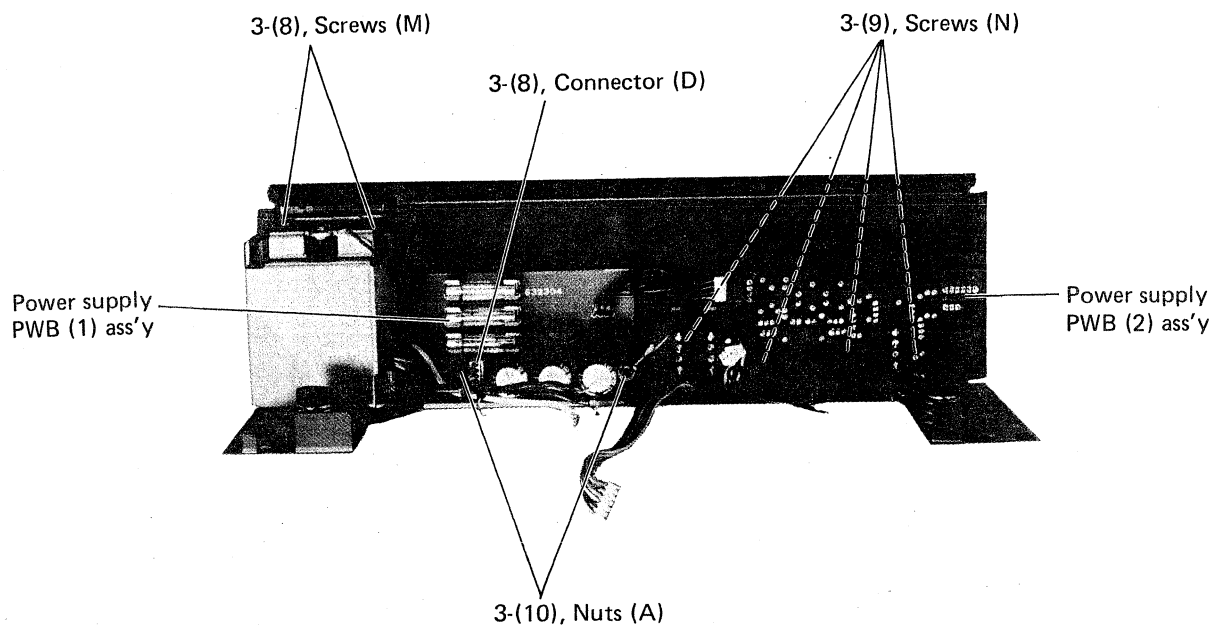
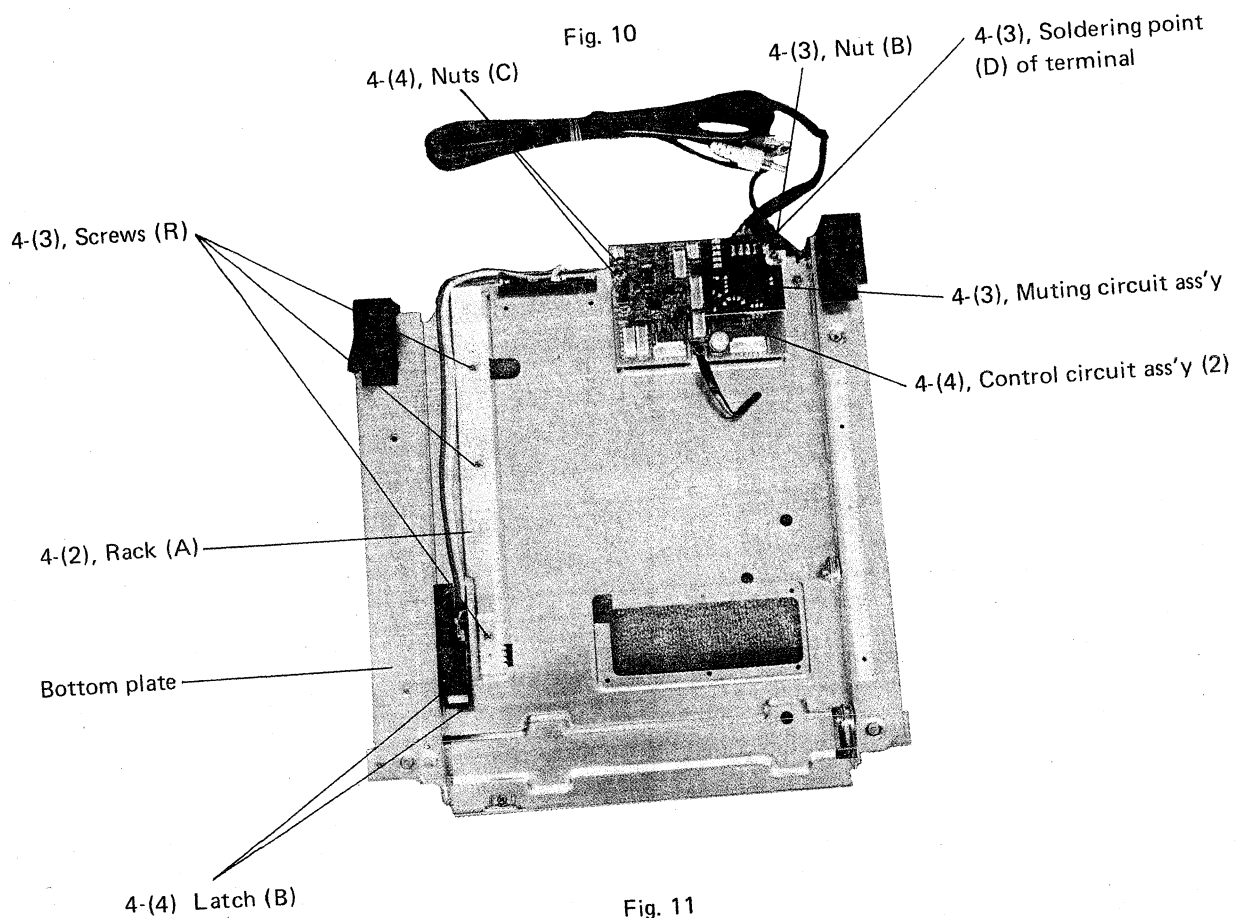
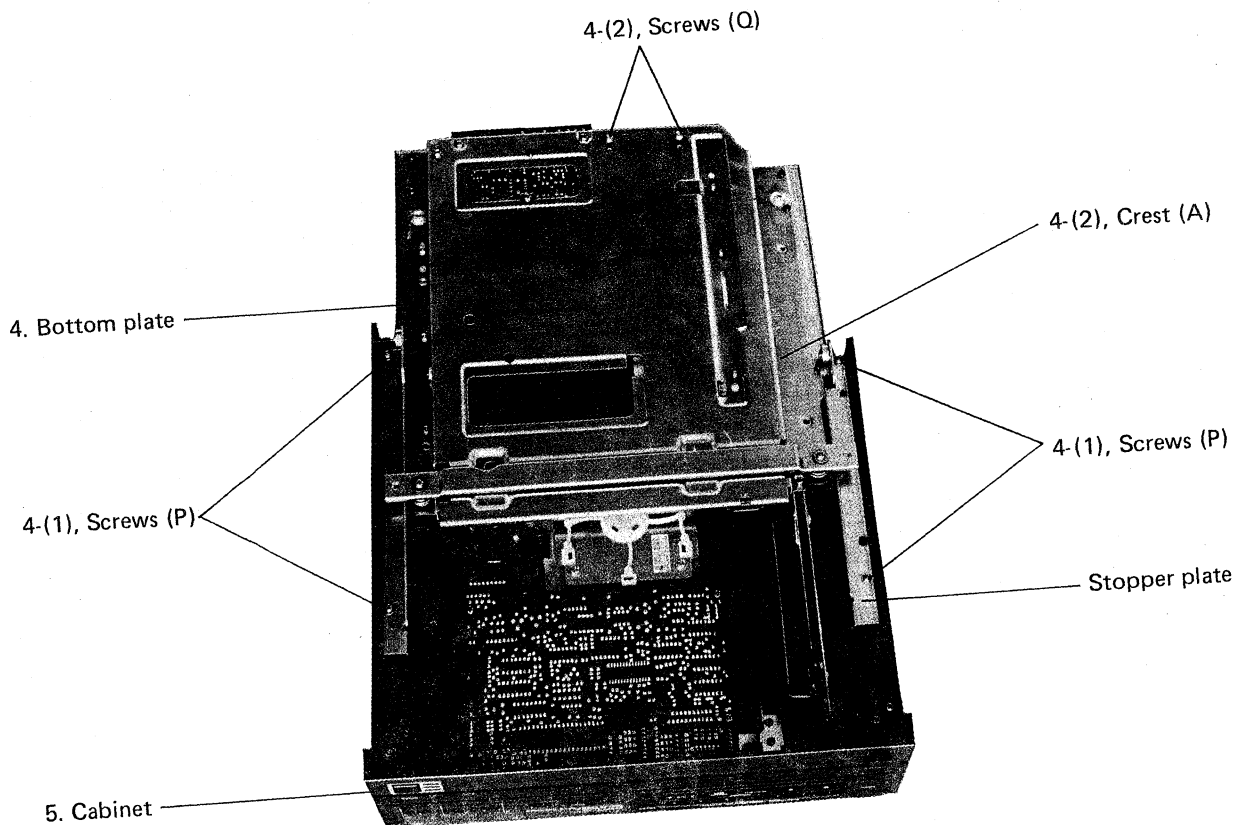


Fig. 9



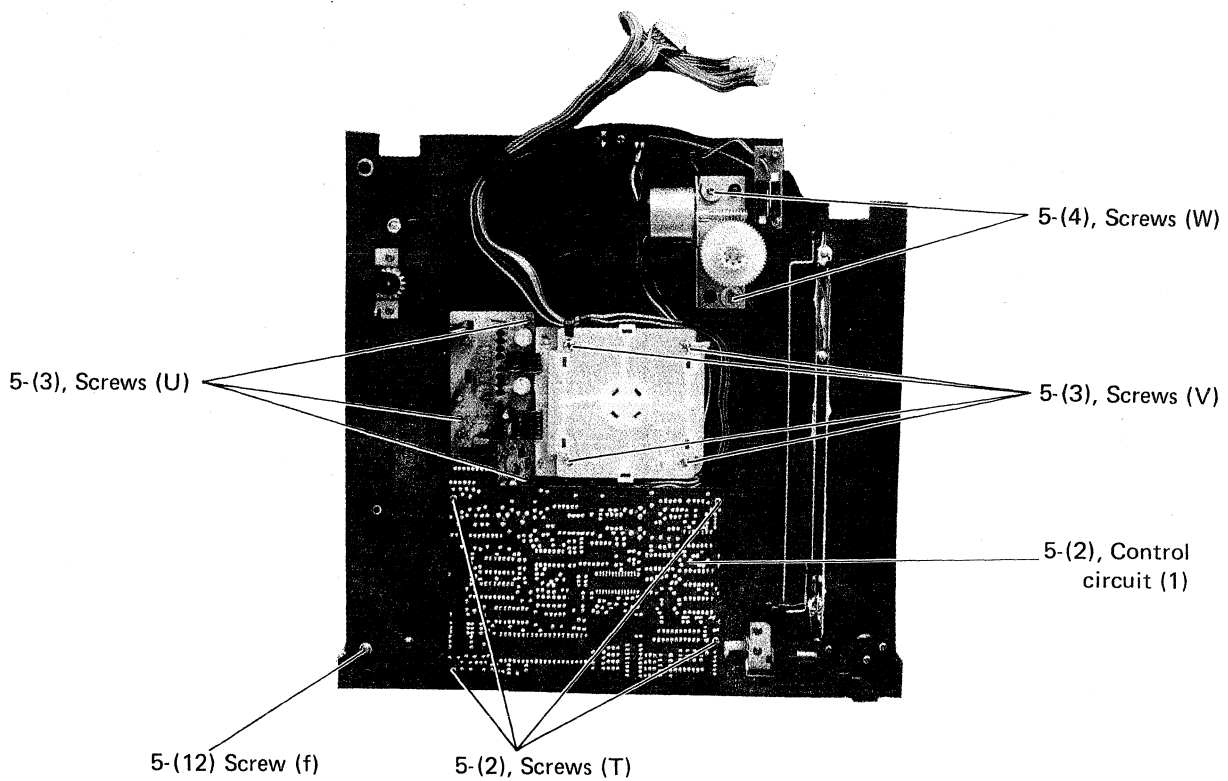


Fig. 12

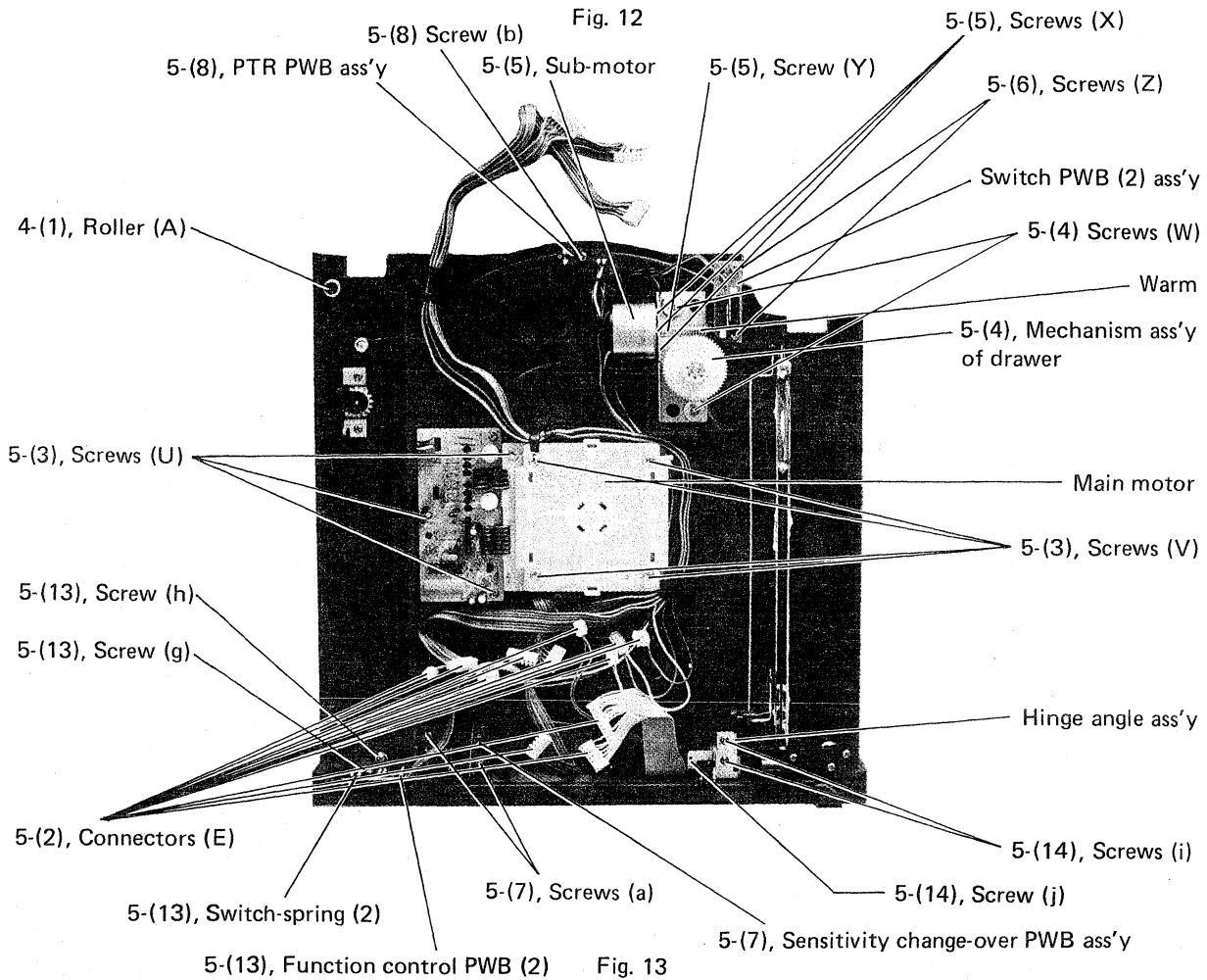


Fig. 13

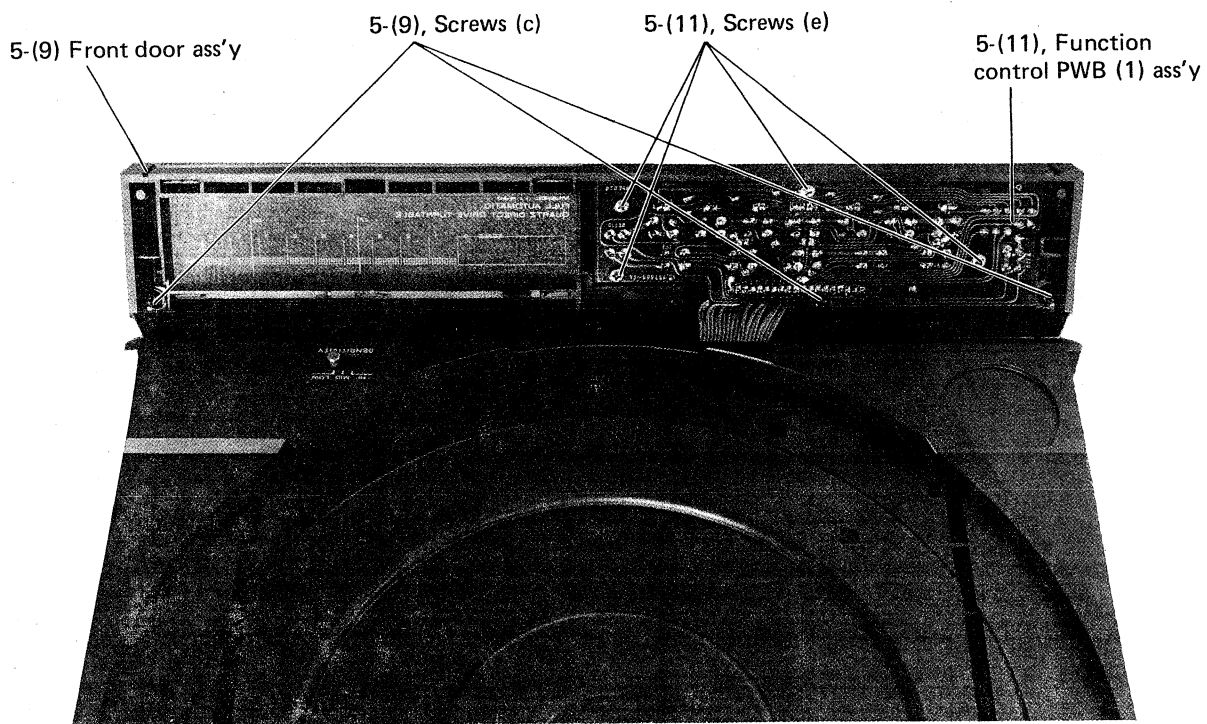


Fig. 14

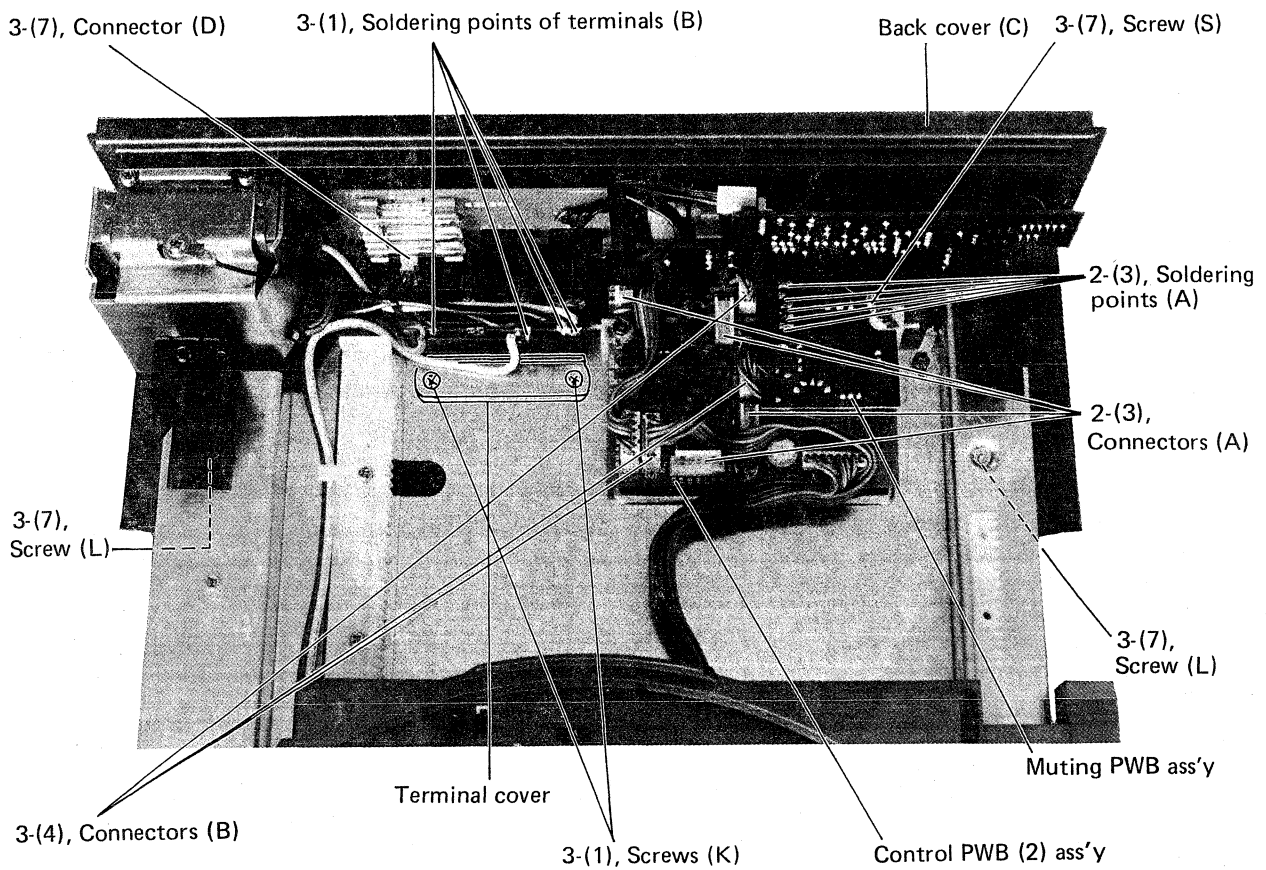


Fig. 15

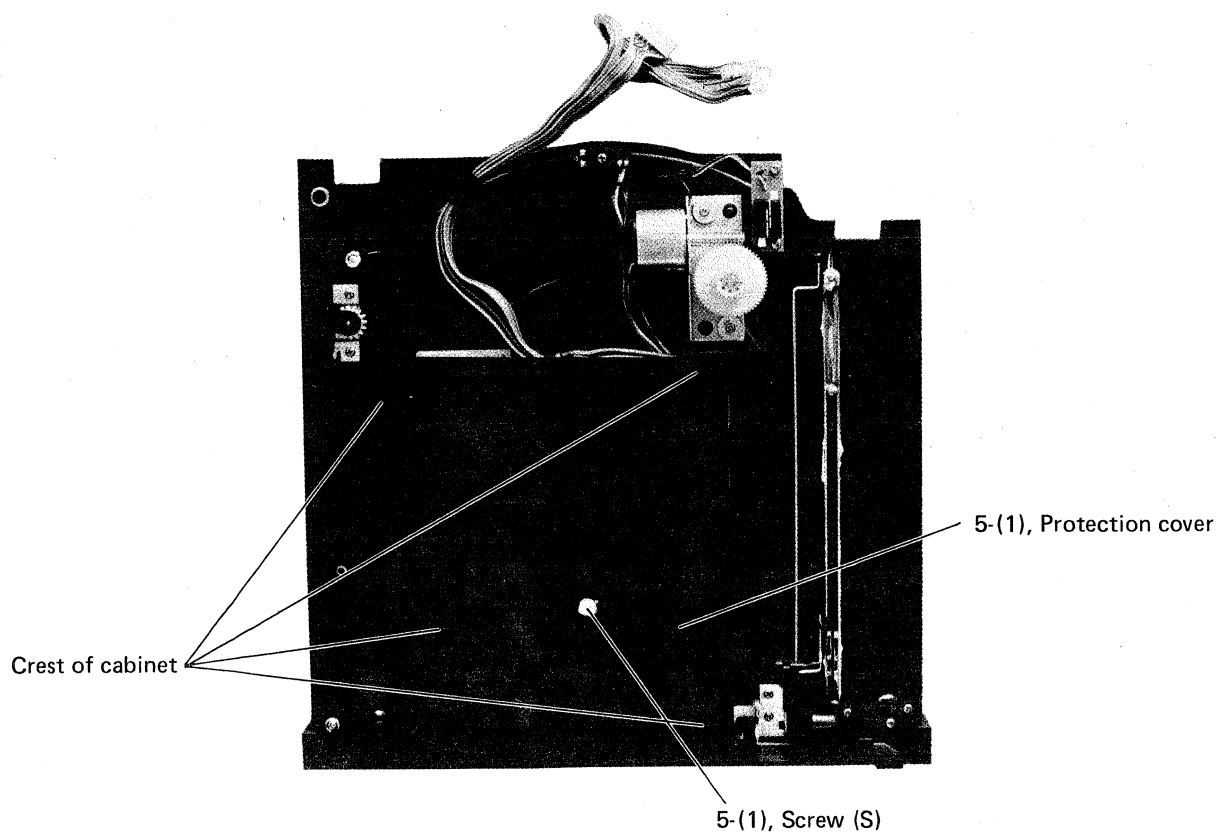


Fig. 16

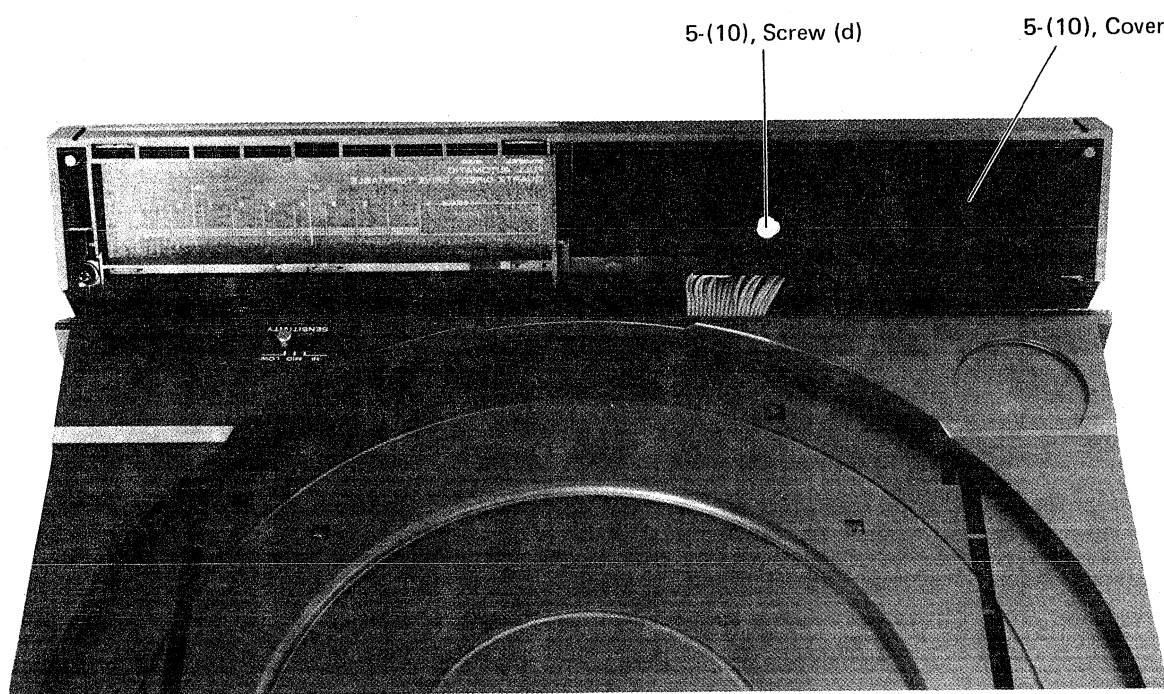


Fig. 17

ADJUSTMENT

1. Adjustment of Tracking Sensor

- (1) Set digital volt meter to DC, 20V range, and connect its \oplus terminal to J205 and \ominus terminal to J206. (See Fig. 18)

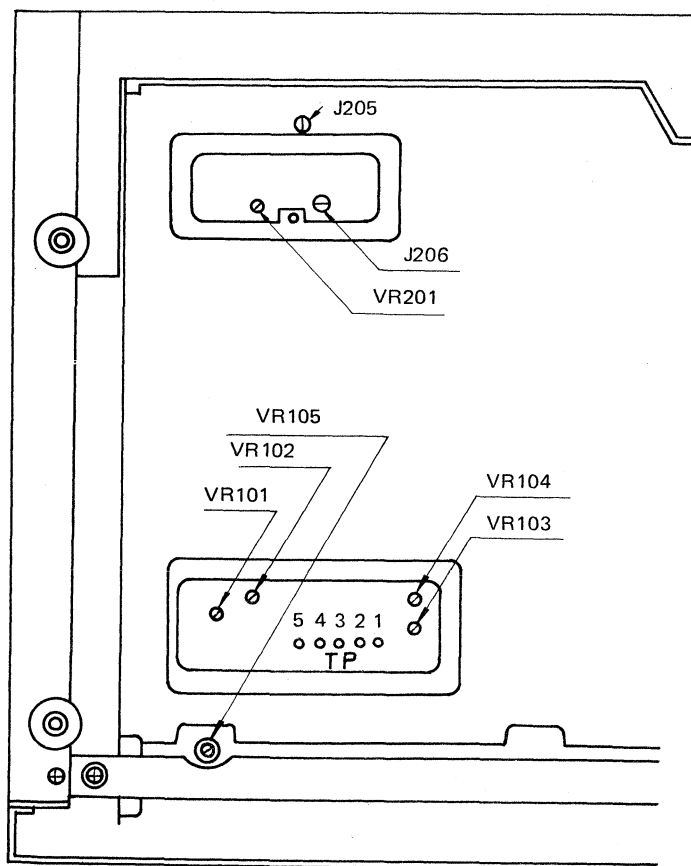


Figure 18
Viewed from bottom

- (2) Adjust VR 201 so that voltage reads 9.0 to 9.5V when tonearm is swung to left side by hand (See Fig. 19), and then adjust eccentric pin (B) so that voltage reads -0.5 to $+0.5$ V when tonearm locates at the center (See Fig. 19, 20).

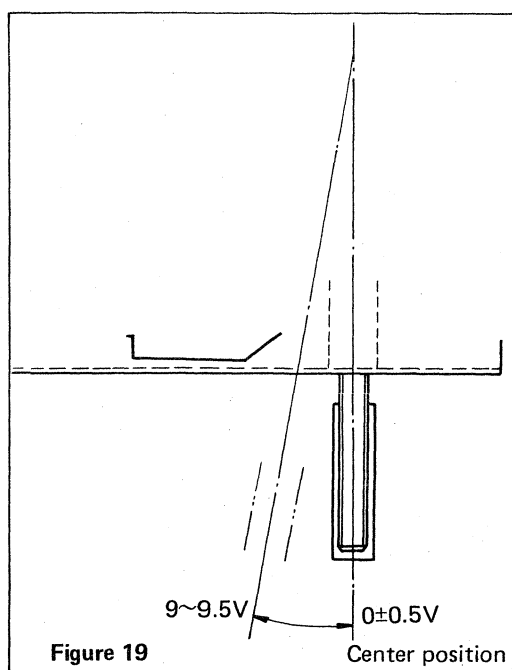


Figure 19

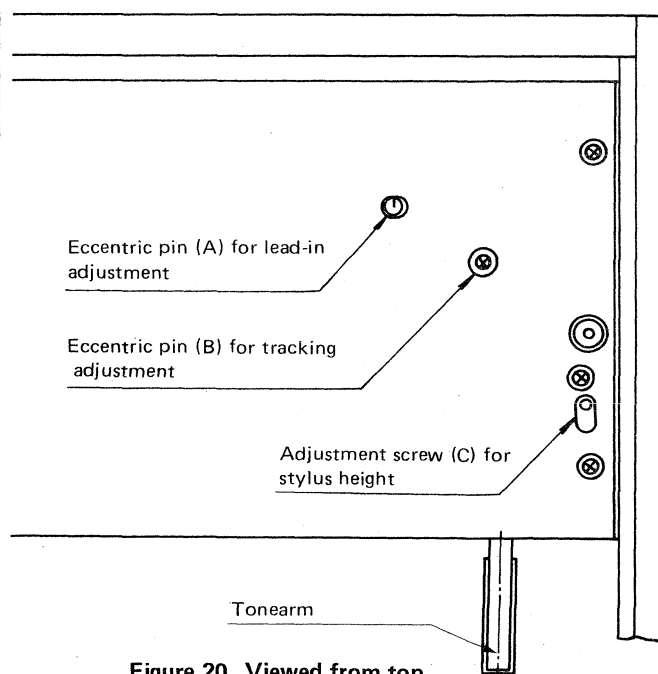


Figure 20 Viewed from top

2. Adjustment of Stylus Height

- (1) Set turntable ready to play with a record disc and tonearm at rest position, and then switch off the power.
- (2) Adjust height of stylus within 4-6mm (normal 5mm) from surface of disc by turning adjustment screw (C). (See Fig. 20)

Note

- (1) The adjustment of the screw is to be made with the tonearm at rest position.
- (2) The adjustment is to be made before adjustment of random programming.
- (3) The height becomes lower when adjustment screw (C) is turned clockwise direction.

3. Adjustment of Lead-in and Lead-off Position

- (1) Use special test record disc of NEC-1008 which having diameter of 17 cm (EP).
- (2) Adjust eccentric pin (A)(Fig. 20) so that lead-in count becomes 20 to 28 counts. (85.1-84.33 mm radius from the center)
- (3) 30 cm (LP) lead-in position is fixed by the adjustment for 17 cm (EP) automatically.

Note

- (1) The adjustment of the pin is to be made with tonearm at the rest position.
- (2) Lead-in position moves gradually inward by rotating the eccentric pin (A) in a clockwise direction.

4. Adjustment of Random Programming (See Fig. 18.)

- (1) Adjustment of sensor 1 to detect unmodulated groove between each program at tonearm up-mode. (See Fig. 21)
In play mode, locates stylus tip above the unmodulated groove or lead-out groove.
Connect \ominus of digital volt meter to TP1 and \oplus to TP2. Adjust VR103 so that voltage reads about 2.5V, and then adjust VR101 so that random programming is performed correctly. VR101 is provided for fine adjustment.
- (2) Adjustment of sensor 2 to detect unmodulated groove for lead-out. (See Fig. 22)
In play mode, locates stylus tip onto the unmodulated groove for lead-out.
Connect \ominus of digital volt meter to TP1 and \oplus to TP3. Adjust VR104 so that voltage reads about 3.0V, and then adjust VR102 so that lead-out motion is performed correctly.

Note

Sensitivity of the sensors are adjusted proportionally by the reads of the above adjustment.

5. Adjustment of sensor to detect designated and unmodulated groove to start play in program mode. (See Fig. 18.)
Adjust VR105 so that stylus descends correctly onto designated and unmodulated groove in programing mode.

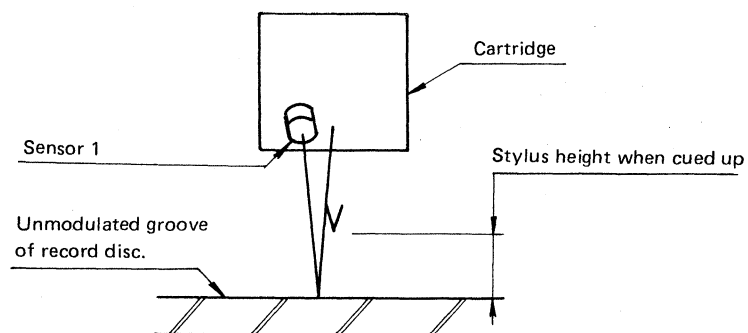


Figure 21 Viewed from cartridge front

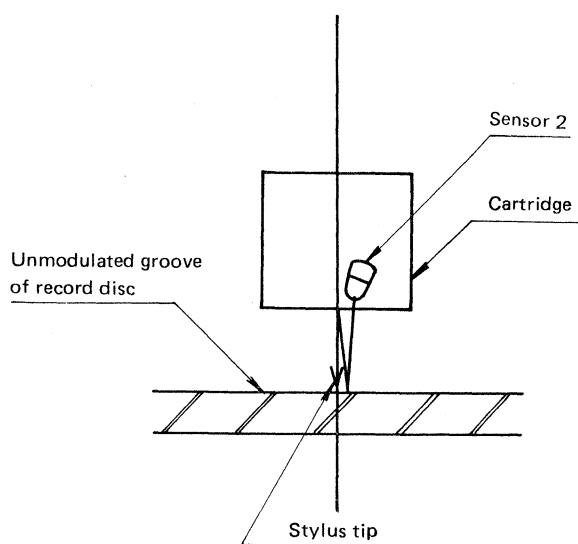
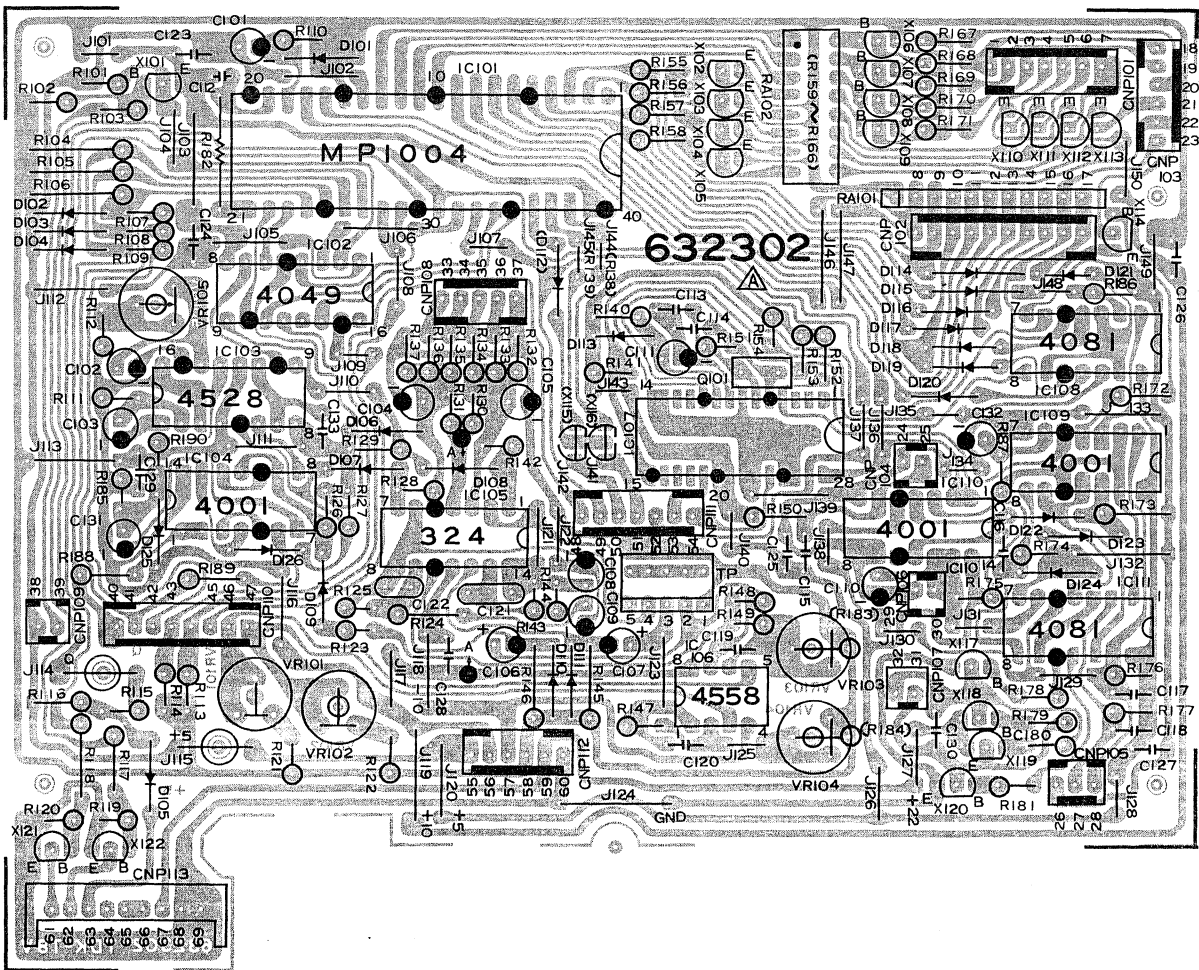
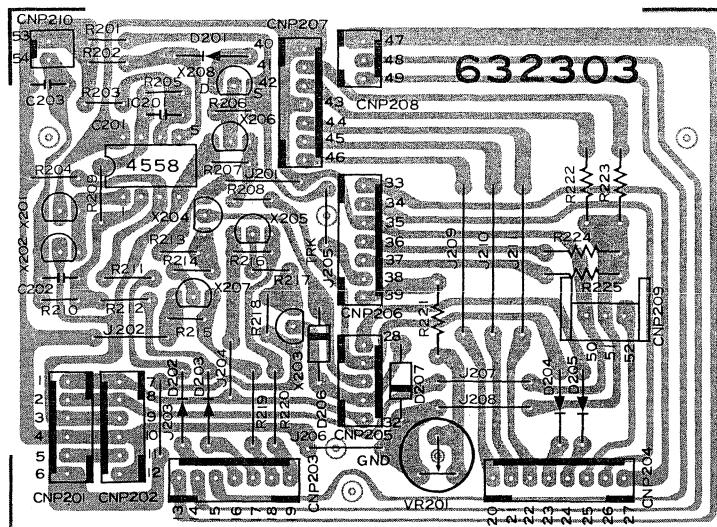


Figure 22 Viewed from cartridge front

MAIN CONTROL P.W.B. (1)

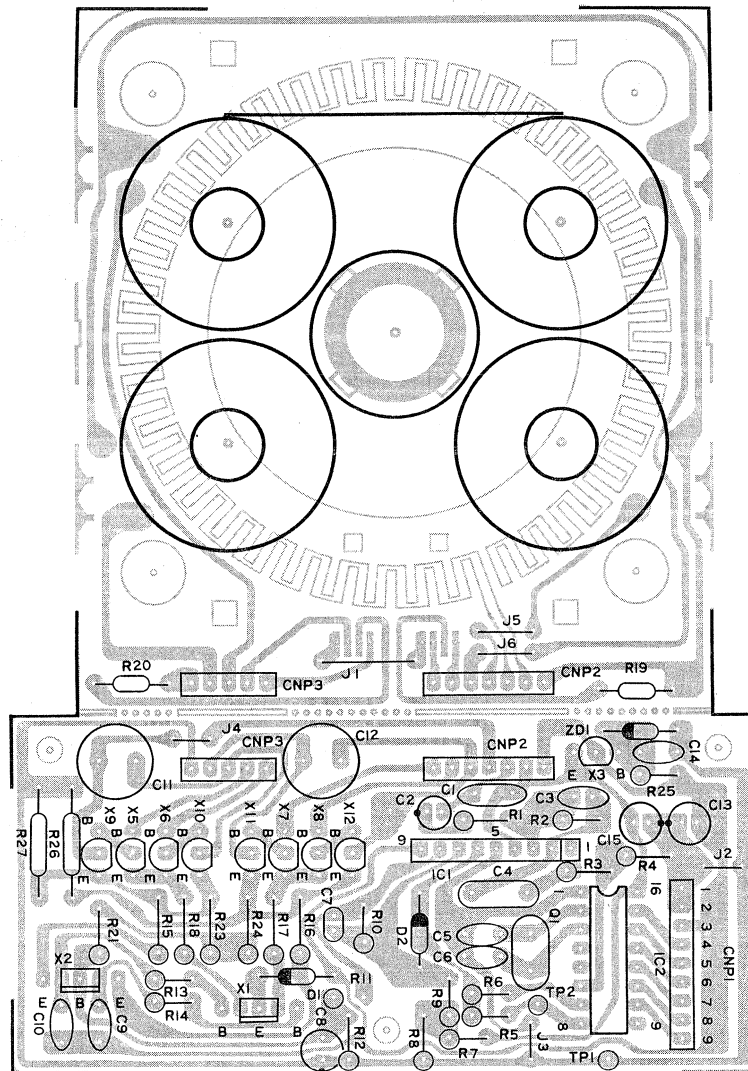


MAIN CONTROL P.W.B. (2)

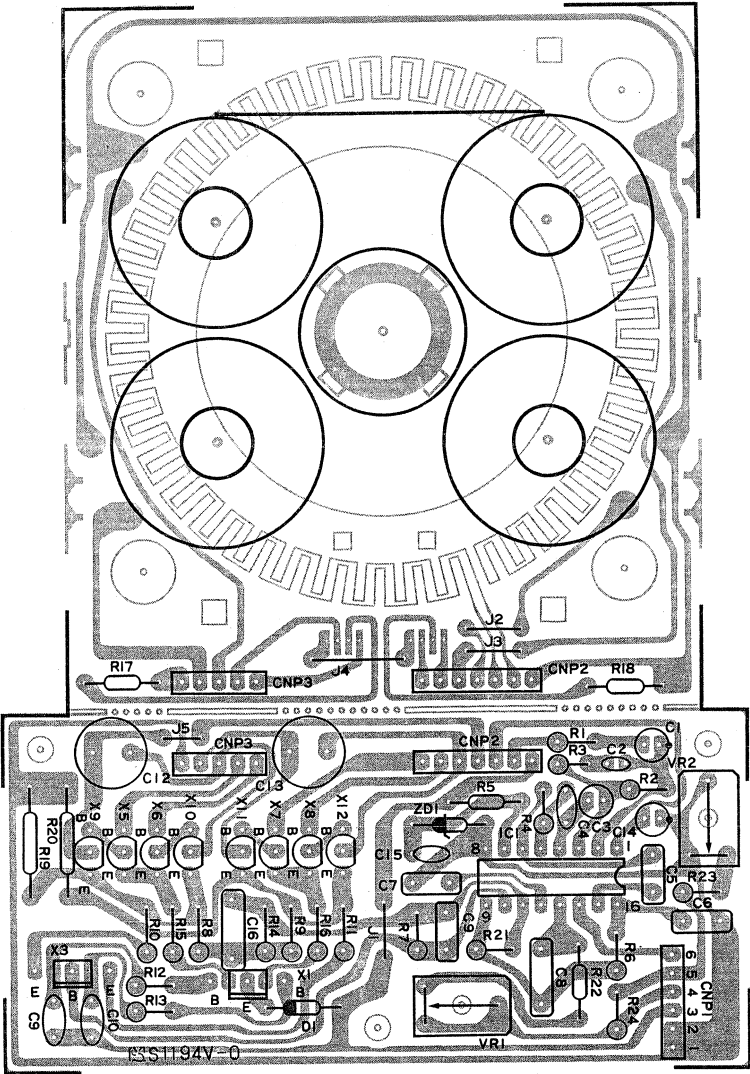


CORRECTION SHEET

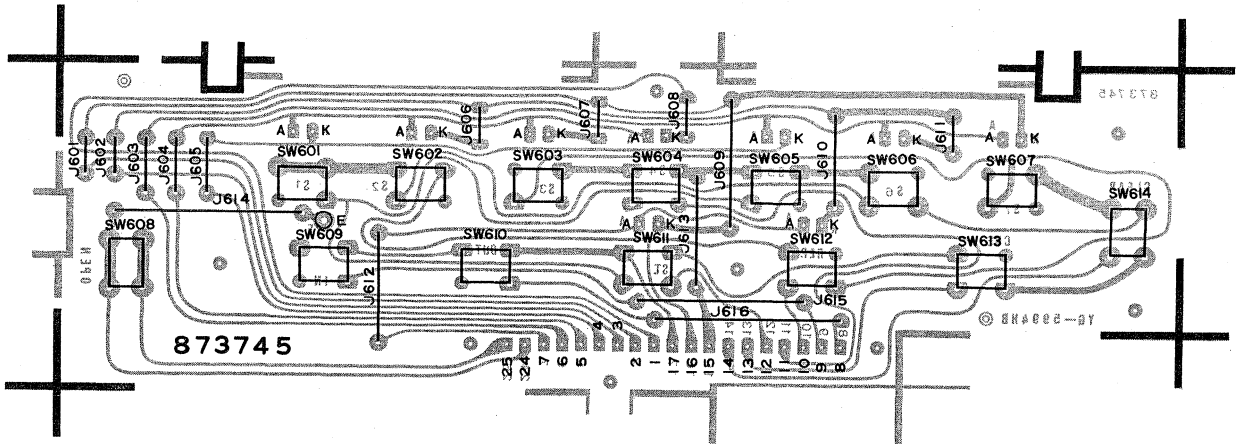
MOTOR CONTROL P.W.B.



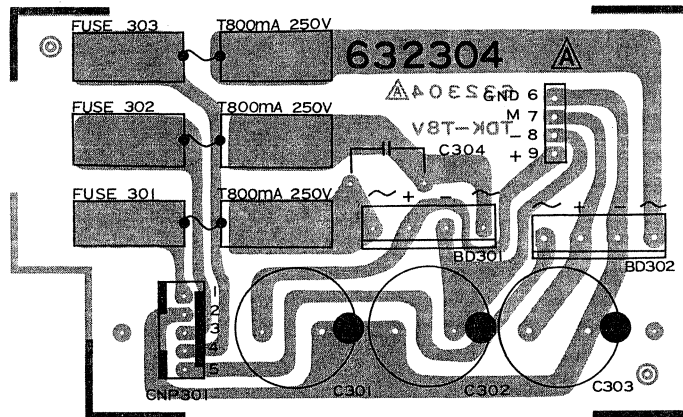
MOTOR CONTROL P.W.B.



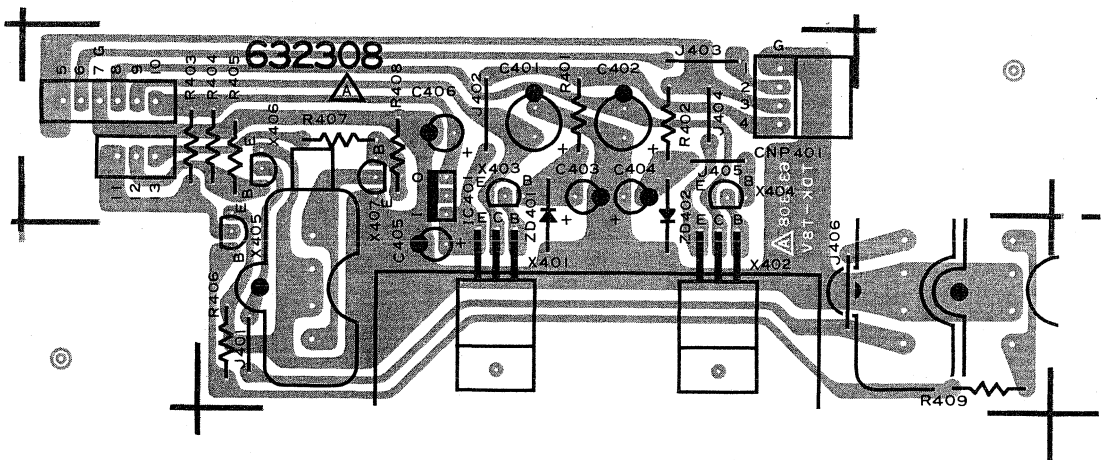
TOUCH CONTROL P.W.B.



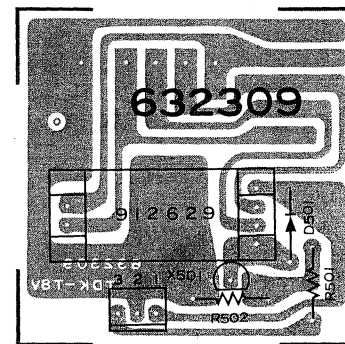
POWER SUPPLY P.W.B. (1)



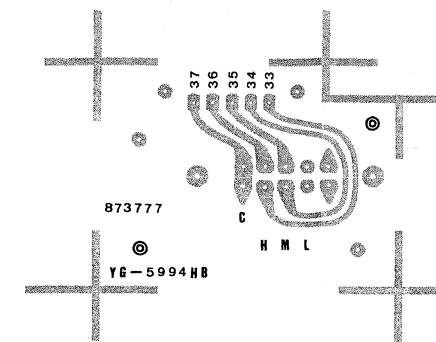
POWER SUPPLY P.W.B. (2)



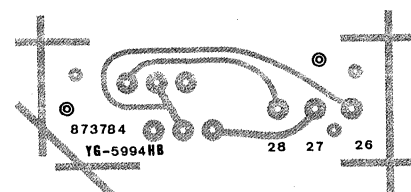
MUTING P.W.B.



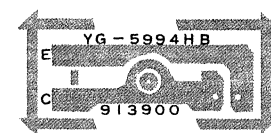
SENSITIVITY CHANGE-OVER P.W.B.



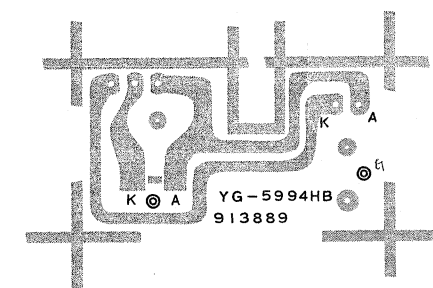
DRAWER SWITCH P.W.B.



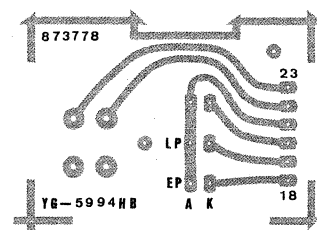
RECORD EXISTENCE
DETECTION P.W.B.



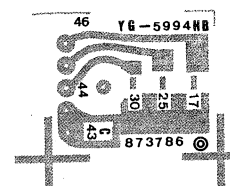
LED P.W.B. FOR LP SENSOR AND POSITION SENSOR



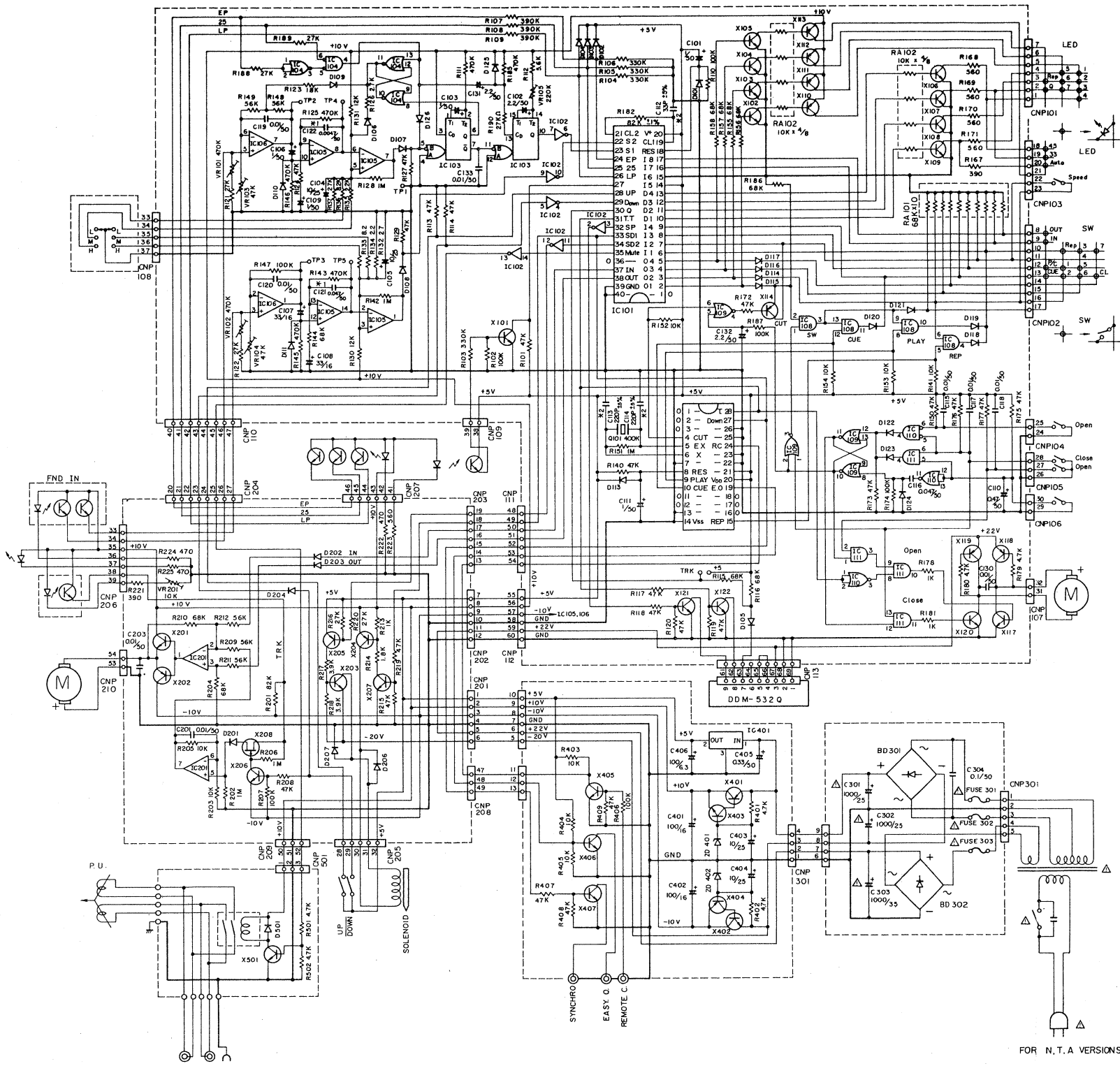
SPEED INDICATOR P.W.B.



POSITION SENSOR P.W.B.



SCHEMATIC DIAGRAM



LIST OF VOLTAGES FOR EACH PIN OF IC AND TRANSISTOR

The voltages are measured under following conditions.

Tonearm at rest position without record disc on with stylus cover mounted Indicator is to be set at AUTO. Sensitivity switch at M. No signal is applied to the logic control circuit (Open).

Voltages are measured between ground and each terminal pin with digital volt meter.

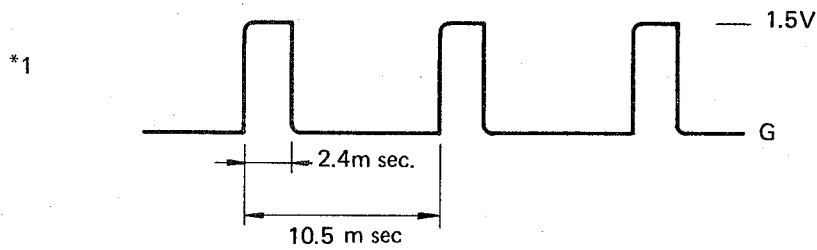
Refer "*" marked voltages to wave form list.

List of Voltages

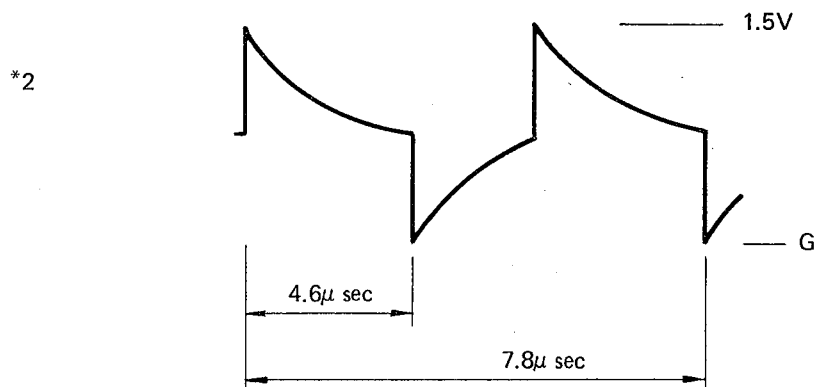
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IC101	1	+5 (not used)	IC102	29	0	IC103	16	NC	IC111	11	0	IC112	10	0	IC113	10	0														
	2	*1		30	+0.5		17	0		12	+5		11	+0.2 *15		11	E	C	+22												
	3	*1		31	0		18	0		13	+5		12	+0.7 *16		12	B	B	*23												
	4	*1		32	0		19	+7.5 *6		14	+5 (VDD)		13	+5		13	E	E	+10												
	5	*1		33	0		20	+10		15	+5		14	+5		14	C	C	*24												
	6	0		34	0		21	0 (VSS)		16	0		15	+5		15	B	B	+10												
	7	*1		35	0		22	+9.5		17	+5		16	+5		16	E	E	+10												
	8	0		36	0 (not used)		18	0		18	0		17	+5		17	C	C	*26												
	9	0		37	0		19	+10		19	0		18	+5		18	B	B	+10												
	10	*1		38	0		20	0 (VSS)		20	0		19	+5		19	E	E	+10												
	11	0		39	0 (VSS)		21	+10 (not used)		21	0		20	+5		20	C	C	*27												
	12	0		40	0		22	0		22	0		21	+5		21	B	B	+10												
	13	0		IC104	10		5	IC105		10	5		IC106	10		5	IC107	10	5	IC108	10	5									
	14	+5			11		+10			11	+10			11		+10		11	+10		11	+10	11	+10	11	+10					
	15	0			12		+5			12	+5			12		+5		12	+5		12	+5	12	+5	12	+5					
	16	0			13		+8.5 *8			13	+8.5 *8			13		+8.5		13	+8.5		13	+8.5	13	+8.5	13	+8.5					
	17	0			14		+0.7 *7			14	+0.7 *7			14		+0.7		14	+0.7		14	+0.7	14	+0.7	14	+0.7					
	18	0 (Reset)			15		0			15	0			15		0		15	0		15	0	15	0	15	0					
	19	*2 (Clock)			16		+10 (VDD)			16	+10 (VDD)			16		+10		16	+10		16	+10	16	+10	16	+10					
	20	+5 (VDD)			17		0			17	0			17		0		17	0		17	0	17	0	17	0					
	21	*3 (Clock)			18		0 (VSS)			18	0 (VSS)			18		0		18	0		18	0	18	0	18	0					
	22	0			19		+8.4			19	+8.4			19		+8.4		19	+8.4		19	+8.4	19	+8.4	19	+8.4					
	23	+5			20		+4			20	+4			20		+4		20	+4		20	+4	20	+4	20	+4					
	24	+4.4 *4			21		0			21	0			21		0		21	0		21	0	21	0	21	0					
	25	+0.7 *4			12		+5			12	+5			12		+5		12	+5		12	+5	12	+5	12	+5					
	26	+0.8 *4			13		not used			13	not used			13		not used		13	not used		13	not used	13	not used	13	not used					
	27	0 *5			14		0			14	0			14		0		14	0		14	0	14	0	14	0					
	28	+5			15		+4.8			15	+4.8			15		+4.8		15	+4.8		15	+4.8	15	+4.8	15	+4.8					
IC, Tr.	PIN NO.	VOLTAGE [V]	IC, Tr.		PIN NO.	VOLTAGE [V]	IC, Tr.		PIN NO.	VOLTAGE [V]	IC, Tr.	PIN NO.		VOLTAGE [V]	IC, Tr.	PIN NO.		VOLTAGE [V]	IC, Tr.		PIN NO.	VOLTAGE [V]									
	10	+10			4	0			8	0		1		+20		10		+10			4	0	8	0	1	+20					
	11	0			5	*13 (Clock)			9	0		2		5		11		0			5	*13 (Clock)	9	0	2	5					
	12	+10			6	*14 (Clock)			10	0		3		0		12		+10			6	*14 (Clock)	10	0	3	0					
	13	+10			7	0 (not used)			11	0		IC101		1		+20		13			+10	7	0 (not used)	11	0	IC101	1	+20			
	14	+10 (VDD)			8	+5 (Reset)			12	0				2		5		14			+10 (VDD)	8	+5 (Reset)	12	0		2	5			
	IC105	1			+8.8	9			0	13				0		IC109		1			+8.8	9	0	IC110	1		+8.8	9	0		
		2			0	10			0	14				+5 (VDD)				2			0	10	0		14		+5 (VDD)	2	0	10	0
		3			+3.4 *10	11			0 (not used)	IC103				1				5			3	+3.4 *10	11		0 (not used)		IC111	1	5	3	+3.4 *10
		4			+10 (V)	12			0 (not used)					2				5			4	+10 (V)	12		0 (not used)			2	5	4	+10 (V)
5		+2 *11	13		0 (VSS)	3	0		5		+2 *11	13		0 (VSS)	3			0	5		+2 *11										
6		0	14		0	4	0		6		0	14		0	4			0	6		0										
7		+8.8	15	0 (not used)	5	+5	7	+8.8	15		0 (not used)	5	+5	7	+8.8																
8		0	16	0 (not used)	6	0	8	0	16		0 (not used)	6	0	8	0																
9	0	17	0 (not used)	7	0 (VSS)	9	0	17	0 (not used)		7	0 (VSS)	9	0																	
10	0	18	0 (not used)	8	0	IC112	1	+8.8	10		0	IC113	1	+8.8	10	0															
IC106	11	-10 (V)	19	0	1		+8.8	11	-10 (V)	19	0		1	+8.8	11	-10 (V)	19	0													
	12	0	20	+5 (VDD)	2		+5	12	0	20	+5 (VDD)		2	+5	12	0	20	+5 (VDD)													
	13	0	21	+5 (not used)	3		+5	13	0	21	+5 (not used)		3	+5	13	0	21	+5 (not used)													
	14	0	22	0 (not used)	4		0	14	0	22	0 (not used)		4	0	14	0	22	0 (not used)													
	IC107	1	+1.8 *12	23	0 (not used)		13	+5	IC114	1	+1.8 *12		23	0 (not used)	13	+5	IC115	1	+1.8 *12	23	0 (not used)										
		2	+0.2	24	+5		14	+5 (VDD)		2	+0.2		24	+5	14	+5 (VDD)		2	+0.2	24	+5										
		3	+0.2	25	0 (not used)		15	0		3	+0.2		25	0 (not used)	15	0		3	+0.2	25	0 (not used)										
		4	-10 (V)	26	0 (not used)	16	0	4		-10 (V)	26	0 (not used)	16	0	4	-10 (V)		26	0 (not used)												
5		+0.2	27	0	17	0	5	+0.2		27	0	17	0	5	+0.2	27		0													
6		0	28	0	18	0	6	0		28	0	18	0	6	0	28		0													
7		+9.5	IC108	1	+5	19	0	7		+9.5	19	0	7	+9.5	19	0		7	+9.5												
8		+10 (V)		2	*1	20	+5	8		+10 (V)	2	*1	20	+5	8	+10 (V)		2	*1												
IC109	1	0 (not used)		3	0	21	0 (VDD)	IC116	1	0 (not used)	3	0	21	0 (VDD)	IC117	1	0 (not used)	3	0												
	2	0 (not used)		4	0	22	0		2	0 (not used)	4	0	22	0		2	0 (not used)	4	0												
	3	0 (not used)		5	0	23	0		3	0 (not used)	5	0	23	0		3	0 (not used)	5	0												
	IC110	1		+1.8 *12	25	0 (not used)	14		+5 (VDD)	IC118	1	+1.8 *12	25	0 (not used)		14	+5 (VDD)	IC119	1	+1.8 *12	25	0 (not used)									
		2		+0.2	26	0 (not used)	15		0		2	+0.2	26	0 (not used)		15	0		2	+0.2	26	0 (not used)									
		3		+0.2	27	0	16		0		3	+0.2	27	0		16	0		3	+0.2	27	0									
4		-10 (V)	28	0	17	0	4	-10 (V)	28		0	17	0	4	-10 (V)	28	0														
5		+0.2	IC109	1	+5	19	0	5	+0.2		IC110	1	+5	19	0	5	+0.2		IC111	1	+5	19	0								
6		0		2	*1	20	+5	6	0			2	*1	20	+5	6	0			2	*1										
7	+9.5	3		0	21	0 (VDD)	7	+9.5	3	0		21	0 (VDD)	7	+9.5	3	0														
8	+10 (V)	4		0	22	0	8	+10 (V)	4	0		22	0	8	+10 (V)	4	0														
IC111	1	0 (not used)		5	0	23	0	IC112	1	0 (not used)		5	0	23	0	IC113	1	0 (not used)		5	0										
	2	0 (not used)		6	*1	24	+5		2	0 (not used)		6	*1	24	+5		2	0 (not used)		6	*1										
	3	0 (not used)	7	0 (VSS)	25	0 (VSS)	3		0 (not used)	7	0 (VSS)	25	0 (VSS)	3	0 (not used)		7	0 (VSS)													
	IC112	1	0 (not used)	8	0	26	0		IC114	1	0 (not used)	8	0	26	0		IC115	1	0 (not used)	8	0										
		2	0 (not used)	9	0	27	0			2	0 (not used)	9	0	27	0			2	0 (not used)	9	0										
		3	0 (not used)	10	+5 (not used)	28	0			3	0 (not used)	10	+5 (not used)	28	0			3	0 (not used)	10	+5 (not used)										
IC113		1	0 (not used)	11	0	29	0	IC116		1	0 (not used)	11	0	29	0	IC117		1	0 (not used)	11	0										
		2	0 (not used)	12	0	30	0			2	0 (not used)	12	0	30	0			2	0 (not used)	12	0										
		3	0 (not used)	13	0	31	0			3	0 (not used)	13	0	31	0			3	0 (not used)	13	0										
	4	0	14	0	32	0	4		0	14	0	32	0	4	0		14	0													
	5	0	15	0	33	0	5		0	15	0	33	0	5	0		15	0													
	6	0	16	0	34	0	6		0	16	0	34	0	6	0		16	0													
IC114	1	0 (not used)	17	0	35	0	IC118	1	0 (not used)	17	0	35	0	IC119	1	0 (not used)	17	0													
	2	0 (not used)	18	0	36	0		2	0 (not used)	18	0	36	0		2	0 (not used)	18	0													
	3	0 (not used)	19	0	37	0		3	0 (not used)	19	0	37	0		3	0 (not used)	19	0													
	4	0	20	0	38	0		4	0	20	0	38	0		4	0	20	0													
	5	0	21	0	39	0		5	0	21	0	39	0		5	0	21	0													
	6	0	22	0	40	0		6	0	22	0	40	0		6	0	22	0													
IC115	1	0 (not used)	23	0	41	0	IC120	1	0 (not used)	23	0	41	0	IC121	1	0 (not used)	23	0													
	2	0 (not used)	24	0	42	0		2	0 (not used)	24	0	42	0		2	0 (not used)	24	0													
	3	0 (not used)	25	0	43	0		3	0 (not used)	25	0	43	0		3	0 (not used)	25	0													
	4	0	26	0	44	0		4	0	26	0	44	0		4	0	26	0													
	5	0	27	0	45	0		5	0	27	0	45	0		5	0	27	0													
	6	0	28	0	46	0		6	0	28	0	46	0		6	0	28	0													
IC116	1	0 (not used)	29	0	47	0	IC122	1	0 (not used)	29	0	47	0	IC123	1	0 (not used)	29	0													
	2	0 (not used)	30	0	48	0		2	0 (not used)	30	0	48	0		2	0 (not used)	30	0													
	3	0 (not used)	31	0	49	0		3	0 (not used)	31	0	49	0		3	0 (not used)	31	0													
	4	0	32	0	50	0		4	0	32	0	50	0		4	0	32	0													
	5	0	33	0	51	0		5	0	33	0	51	0		5	0	33	0													
	6	0	34	0	52	0		6	0	34	0	52	0		6	0	34	0													
IC117	1	0 (not used)	35	0	53	0	IC124	1	0 (not used)	35	0	53	0	IC125	1	0 (not used)	35	0													
	2	0 (not used)	36	0	54	0		2	0 (not used)	36	0	54	0		2	0 (not used)	36	0													
	3	0 (not used)	37																												

WAVE FORM LIST

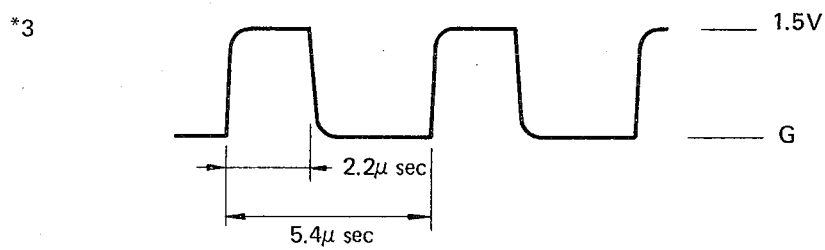
Refer "*" marked Figure to voltage list on the schematic diagram.
Wave form are measured by oscilloscope.



Wave from is same, but output timing is deviated by each terminal pin.



Frequency will be deviated by input impedance of measuring equipment.



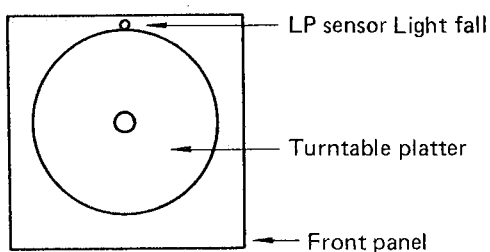
Frequency will be deviated by input impedance of measuring equipment.

*4

Voltages become "L" or "H" by the location of tonearm.
L represents: 0-2V. H represents: 3-5V.

PIN NO.	REST		LP-25	25-EP	EP-LP RETURN	LP RETURN-EP RETURN	EP RETURN
24	H	H	L	L	H	H	L
25	L	L	L	H	H	H	H
26	L	H	H	H	H	L	L

*5



*6

Output voltage will be deviated by impedance of measuring equipment with below mentioned formular.

"R" represents input impedance of measuring equipment.

$$\text{Output voltage} = 10 \times \frac{R}{R + 470K\Omega} [V]$$

*7

Output voltage will be deviated by input impedance of measuring equipment and VR105 with below mentioned formular.

"R" represents input impedance of measuring equipment.

$$\text{Output voltage} = 10 \times \frac{R}{R + VR105 (220K\Omega)} [V]$$

*8

+8V or more

*9

+2V or less

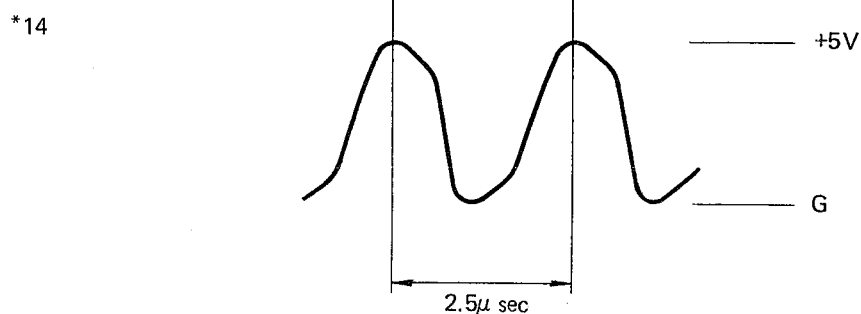
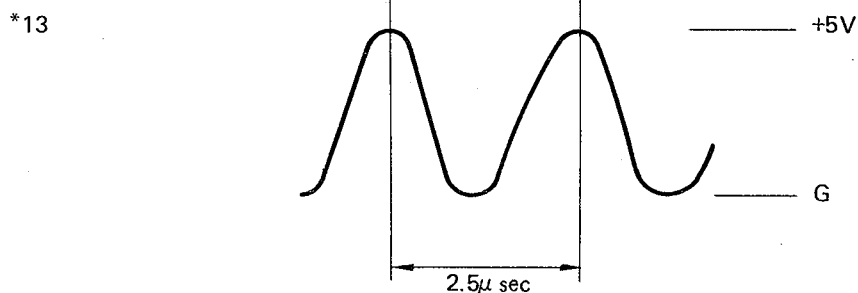
*10 Voltage will be changed by setting of sensitivity switch.

3.4V for High
5.0V for Middle
7.0V for Low

*11 Voltage will be changed by setting of sensitivity switch.

1.8V for High
2.0V for Middle
2.2V for Low

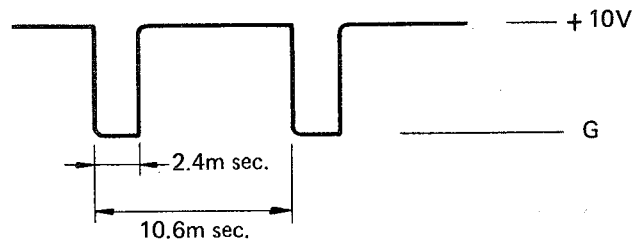
*12 Output of sensor to detect unmodulated groove between each program.
Voltage will be varied by brightness of ambient.



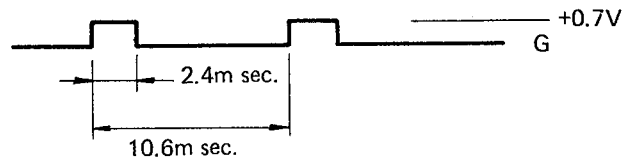
*15 0V: with light falls on LP.
+5V: without light falls on LP.

*16 +0.7V: with light falls on LP sensor.
0V: without light falls on LP sensor.

*17

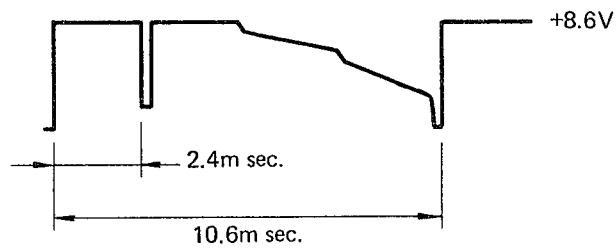


*18



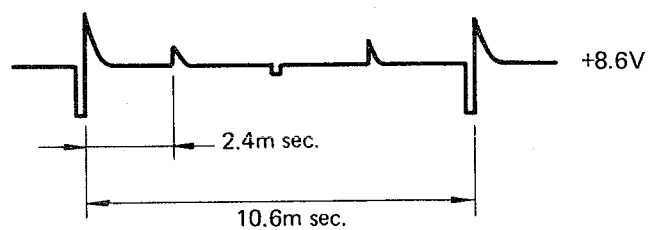
*19

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



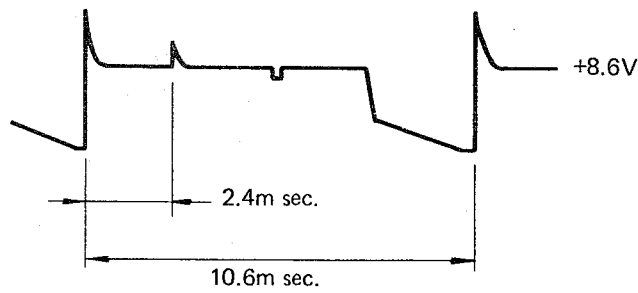
*20

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



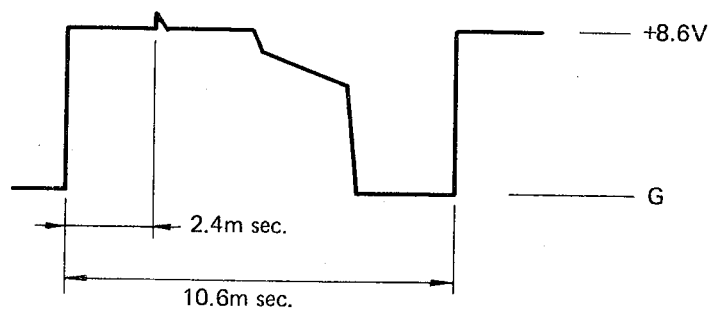
*21

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

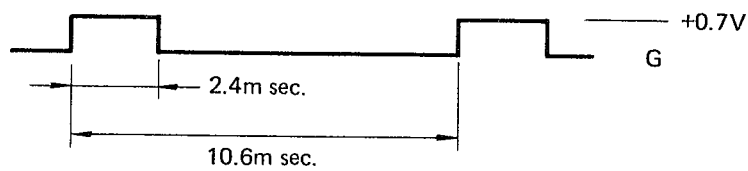


*22

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

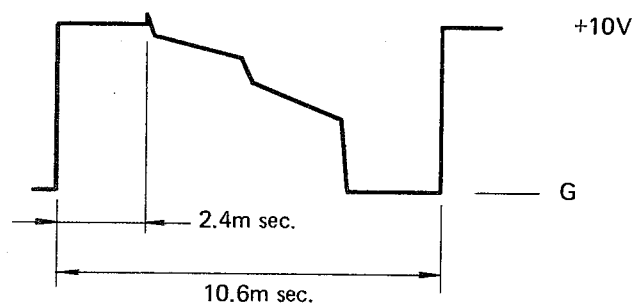


*23



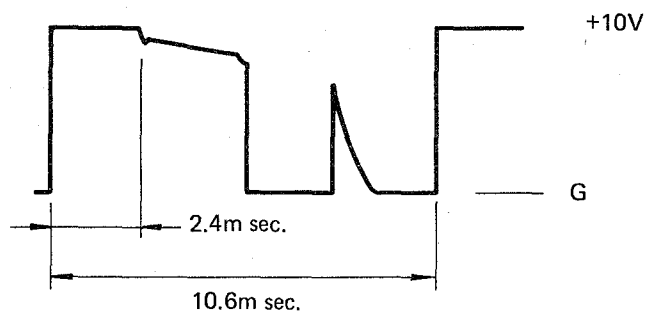
*24

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



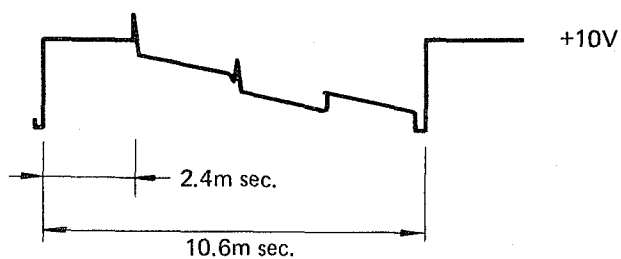
*25

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.



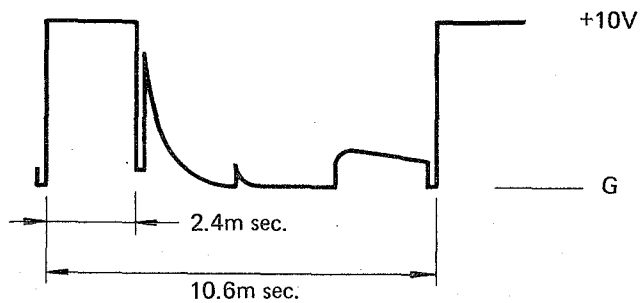
*26

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

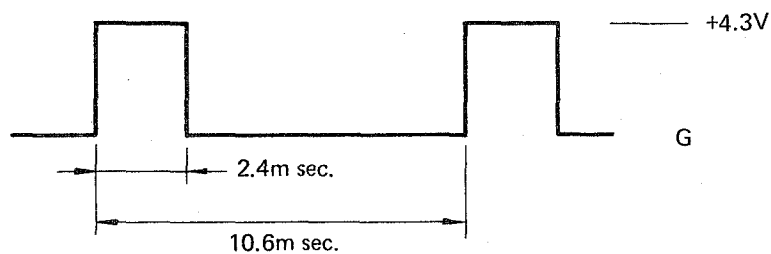


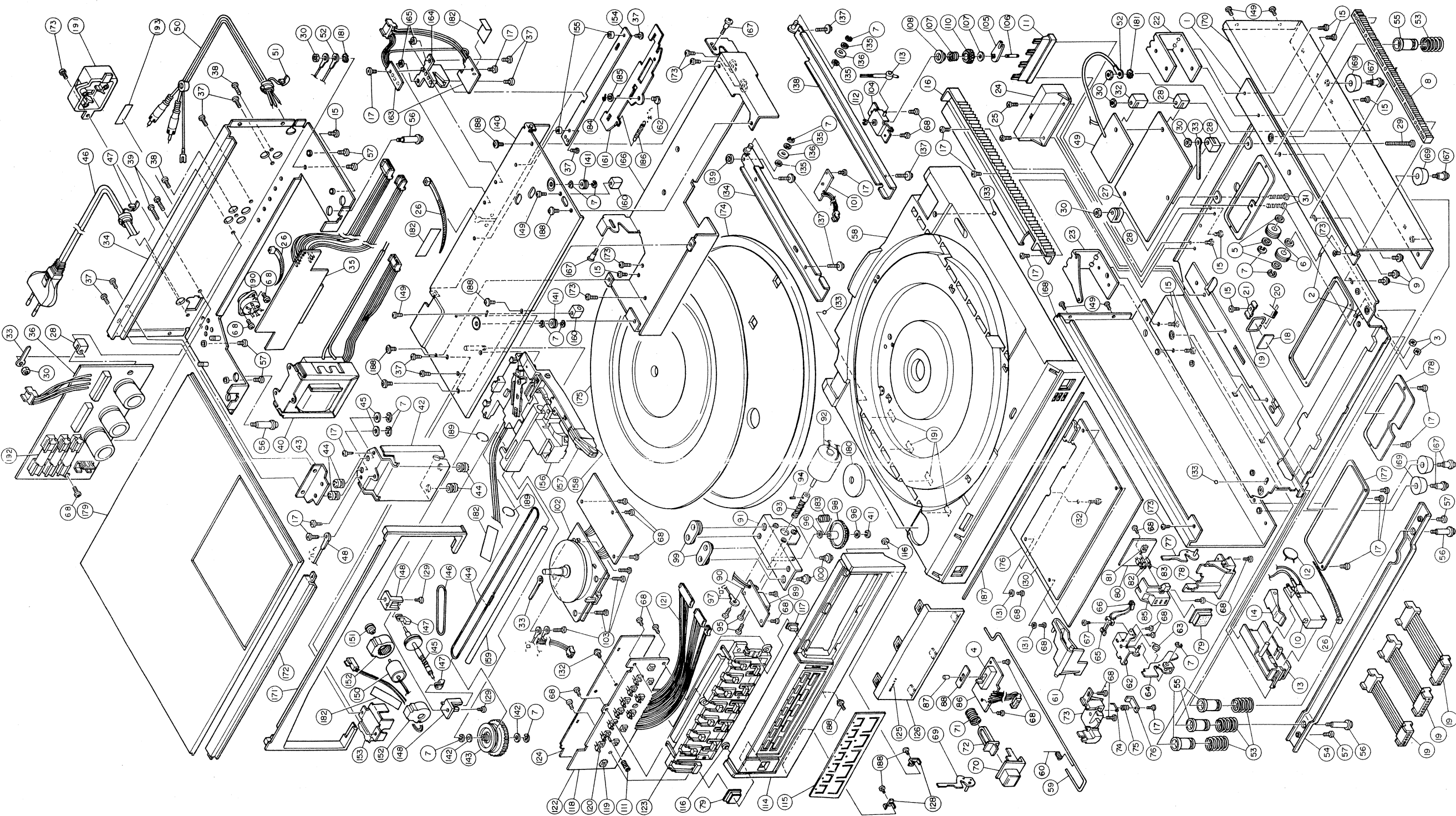
*27

Since potential of the pin is not fixed wave form will be changed by the measuring equipments to be connected.

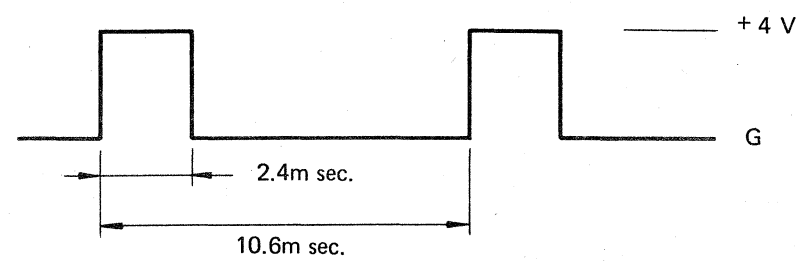


*28





*29



*30

$\pm 0.5V$ or less (Output level of tracking sensor)

PARTS LIST

REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		U/C	N	E	A	
6	424Z358010	2	2	2	2	Roller
34	424Z160020	1				Bracket, Rear Panel
34	424Z160030		1			Bracket, Rear Panel
34	424Z160040			1		Bracket, Rear Panel
34	424Z160050				1	Bracket, Rear Panel
47	424Z259010	1				Bush, Power Cord
47	424Z259030		1	1	1	Bush, Power Cord
51	424Z259020	1	1	1	1	Bush, Connective Cord
58	424Z064020	1	1	1	1	Case, Cabinet
70	424Z154050	1	1	1	1	Knob, Power
79	424Z154060	2	2	2	2	Knob, Open Speed
87	424Z154040	1	1	1	1	Knob, Sensitivity
93	424Z058010	1	1	1	1	Gear, Worm
98	424Z058020	1	1	1	1	Gear
113	424Z071010	1	1	1	1	Cleaner
114	424Z063020	1	1	1	1	Escutcheon, Front Panel
115	424Z265010	1	1	1	1	Indicator, SW. Plate
116	424Z056010	2	2	2	2	Buffer
117	424Z154070	1	1	1	1	Knob, Clear
125	424Z251010	1	1	1	1	Badge, marantz
126	424Z158010	1	1	1	1	Window
133	424Z106010	3	3	3	3	Sustainer, Steel Ball
144	424Z006500	1	1	1	1	String Ass'y, Wire Rope
146	424Z264010	1	1	1	1	Belt, Tone Arm Drive
151	424Z262010	1	1	1	1	Pulley, Motor
157	PC221003AR	1	1	1	1	Phono Cartridge
158	PS221004AR	1	1	1	1	Stylus, CTS-433
168	424Z053040	1	1	1	1	Cover, Left
170	424Z053050	1	1	1	1	Cover, Right
171	424Z401020	1	1	1	1	Frame, Front
174	424Z165010	1	1	1	1	Turn Table
175	424Z107010	1	1	1	1	Sheet
179	424Z053060	1	1	1	1	Cover, Dust Cover
180	424Z362010	1	1	1	1	Rec. Adaptor
	424Z010010	8	8	8	8	Screw

REF. DESIG.	PART NO.	QUANTITY				DESCRIPTION
		U/C	N	E	A	
	424Z114010	4	4	4	4	Stopper
	424Z265020	8	8	8	8	Indicator, Caution
	424Z007010	1	1	1	1	Strip
001U	424Z801530	1				Packing Case Ass'y
001U	424Z801510		1	1	1	Packing Case Ass'y
002U	424Z807010	2				Reinforcement
003U	424Z809010	2	2	2	2	Cushion
004U	424Z252010	1	1	1	1	Pad
005U	424Z252020	1	1	1	1	Pad
006U	424Z861020	1	1	1	1	Label, Earth Caution
007U	421Z269030	1	1	1	1	Protector
008U	ZD01000220	1	1	1	1	Connective Cord, Green
009U	ZD010001AR	1	1	1	1	Connective Cord, Black
010U	424Z851310	1	1	1	1	Instructions
△ 10	SM010203AR	1	1	1	1	Micro Switch, Power
△ 12	DK18103840	1	1	1	1	Ceramic 0.01μF 400V,
27	ZZ424Z0010	1	1	1	1	P.W.B. Ass'y, Control (2)
	YF424Z0010	1	1	1	1	P.W. Board, Control (2)
IC201	HC10003090	1	1	1	1	IC, NJM4558D
X201	HT406673A0	1	1	1	1	Transistor, 2SD6674A-B, C, D
X202	HT208473A0	1	1	1	1	Transistor, 2SB847A-B, C, D
X203	HT320011K0	1	1	1	1	Transistor, 2SC2001-K
X204	HT109521K0	1	1	1	1	Transistor, 2SA952-K
X205	HT107332A0	1	1	1	1	Transistor, 2SA733-P, Q
X206	HT309452B0	1	1	1	1	Transistor, 2SC945-P, Q
X207	HT309452B0	1	1	1	1	Transistor, 2SC945-P, Q
X208	HT200682A0	1	1	1	1	Transistor, 2SK68-K, L
D201	HD20020050	5	5	5	5	Diode, 1S1588
?						
D205	HD20008060	1	1	1	1	Diode, F14C
D206	HD20008060	1	1	1	1	Diode, F14C
D207	HD20008060	1	1	1	1	P.W.B. Ass'y, Power Supply (2)
35	ZZ424Z0020	1	1	1	1	

REF. DESIG.	PART NO.	DESCRIPTION	QUANTITY					
			U/C	N	E	A	T	
IC401	YF424Z0020	P.W. Board, Power Supply (2)	1	1	1	1	1	
X401	HC10031060	IC, μ PC78L05	1	1	1	1	1	
X402	HT205362AR	Transistor, 2SB536-L, K	1	1	1	1	1	
X403	HT403812AR	Transistor, 2SD381-L, K	1	1	1	1	1	
X404	HT309452B0	Transistor, 2SC945-P, Q	1	1	1	1	1	
X405	HT107332A0	Transistor, 2SA733-P, Q	1	1	1	1	1	
X406	HT309452B0	Transistor, 2SC945-P, Q	1	1	1	1	1	
X407	HT309452B0	Transistor, 2SC945-P, Q	1	1	1	1	1	
ZD401	HD300005AR	Zener diode, RD11E (B2)	1	1	1	1	1	
ZD402	HD300005AR	Zener, RD11E (B2)	1	1	1	1	1	
36	ZZ424Z1030	P.W.B. Ass'y, Power Supply (1)	1					
36	ZZ424Z2030	P.W.B. Ass'y, Power Supply (1)	1	1				
36	ZZ424Z3030	P.W.B. Ass'y, Power Supply (1)		1				
	YF424Z0030	P.W. Board, Power Supply (1)	1	1	1	1	1	
D301	HD20026080	Diode, RB-151	1	1	1	1	1	
D301	HD20026080	Diode, RB-151	1	1	1	1	1	
C301	EA1080251R	Electrolytic Capacitor, 1,000 μ F 25V	1	1	1	1	1	
C302	EA1080251R	Electrolytic Capacitor, 1,000 μ F 25V	1	1	1	1	1	
C303	EA1080351R	Electrolytic Capacitor, 1,000 μ F 35V	1	1	1	1	1	
Δ FUSE301	FS10100500	Fuse, 1A 250V	1					
Δ FUSE302	FS10100500	Fuse, 1A 250V	1					
Δ FUSE303	FS10100500	Fuse, 1A 250V	1					
Δ FUSE301	FS10080800	Fuse, T800 mA 250V		1	1	1	1	
Δ FUSE302	FS10080800	Fuse, T800 mA 250V		1	1	1	1	
Δ FUSE303	FS10080800	Fuse, T800 mA 250V		1	1	1	1	
Δ 40	TS100010AR	Power Transformer	1					
Δ 40	TS100011AR	Power Transformer		1				
Δ 40	TS100012AR	Power Transformer			1			
Δ 40	TS100013AR	Power Transformer				1	1	
Δ 46	YC018002AR	AC, Power Cord	1					
Δ 46	YC020002AR	AC, Power Cord		1				
Δ 46	YC020003AR	AC, Power Cord				1		
Δ 46	YC020004AR	AC, Power Cord					1	

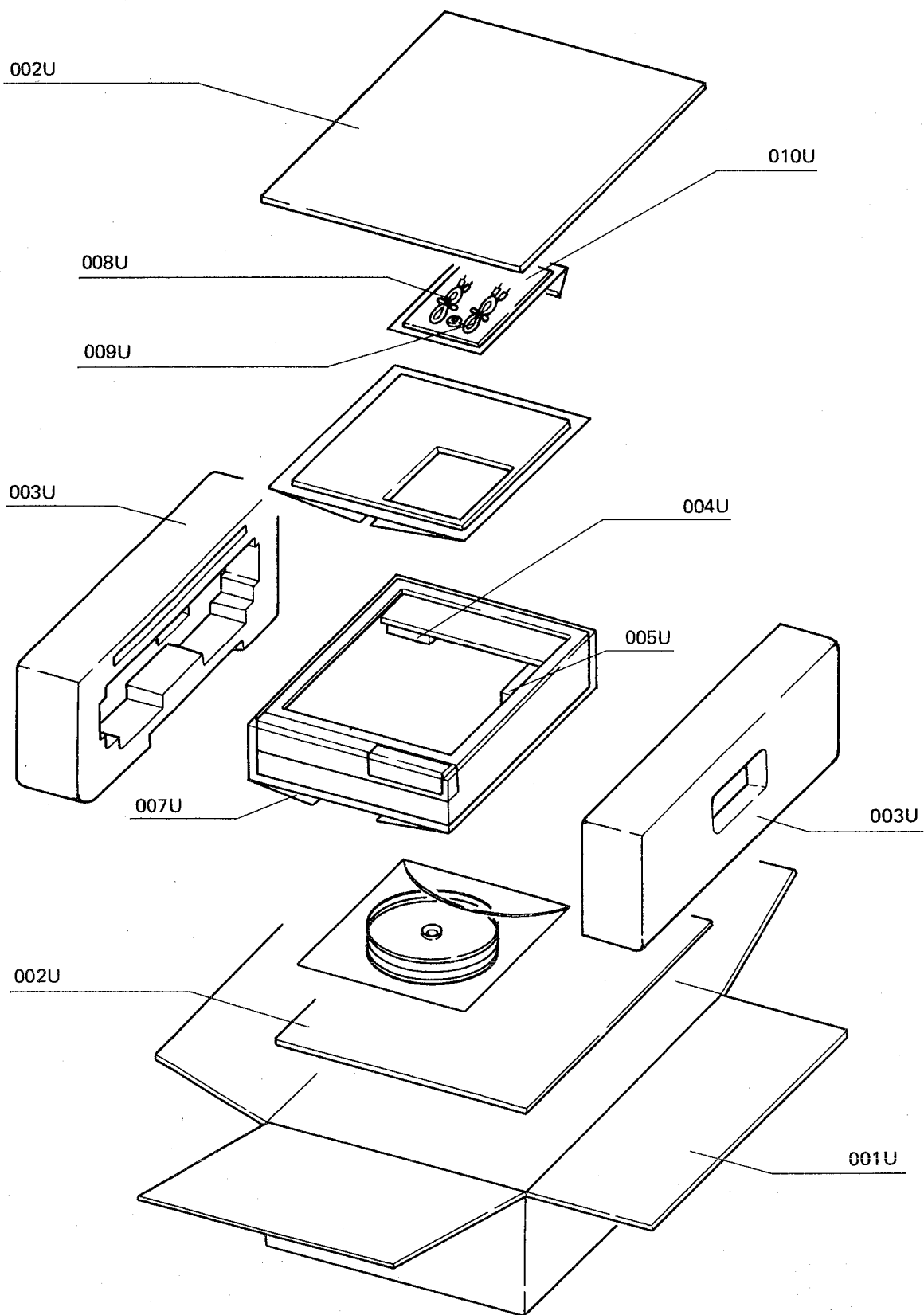
REF. DESIG.	PART NO.	DESCRIPTION	QUANTITY					
			U/C	N	E	A	T	
49	ZZ424Z1040	P.W.B. Ass'y, Muting	1					
49	ZZ424Z0040	P.W.B. Ass'y, Muting		1	1	1	1	
	YF424Z0040	P.W. Board, Muting	1	1	1	1	1	
X501	HT309452B0	2SC945-P, Q	1	1	1	1	1	
D501	HD20020050	Diode, 1S1588	1	1	1	1	1	
	LY212001AR	Relay, 12V	1	1	1	1	1	
50	YB015004AR	Connective Cord, Output	1					
50	YB015003AR	Connective Cord, Output		1	1	1	1	
65	SM010110AR	Mini Switch	1	1	1	1	1	
84	ZZ424Z0050	P.W.B. Ass'y, Speed Indicator	1	1	1	1	1	
80	YF424Z0050	P.W. Board, Speed Indicator	1	1	1	1	1	
81	SP010101AR	Push Switch	1	1	1	1	1	
82	HI10004080	L.E.D. SEL1124R	2	2	2	2	2	
83	HI10005080	L.E.D. SEL1324G	1	1	1	1	1	
86	ZZ424Z0060	P.W.B. Ass'y, Sensitivity	1	1	1	1	1	
4	SS020301AR	Slide Switch	1	1	1	1	1	
90	ZZ424Z0070	P.W.B. Ass'y Drawer Switch	1	1	1	1	1	
89	SM010204AR	Mini Switch	2	2	2	2	2	
92	MM016002AR	DC Motor, Drawer	1	1	1	1	1	
101	ZZ424Z0080	P.W.B. Ass'y, Disc Sensor	1	1	1	1	1	
102	PM233006AR	Phono Motor	1	1	1	1	1	
122	ZZ424Z0090	P.W.B. Ass'y, Touch Control	1	1	1	1	1	
118	YF424Z0090	P.W. Board, Touch Control	1	1	1	1	1	
119	SP010101AR	Push Switch	14	14	14	14	14	
120	HI10001080	LED SEL1112R	9	9	9	9	9	
130	ZZ424Z0100	P.W.B. Ass'y, Control (1)	1	1	1	1	1	
	YF424Z0100	P.W. Board, Control (1)	1	1	1	1	1	
IC101	HC100014AR	IC, MP1004	1	1	1	1	1	
IC102	HC404905B0	IC, TC4049BP	1	1	1	1	1	
IC103	HC452800B0	IC, μ PD4528C	1	1	1	1	1	
IC104	HC400100B0	IC, LC4001B	1	1	1	1	1	
IC105	HC100015AR	IC, μ PC324C	1	1	1	1	1	
IC106	HC10003090	IC, NJM4558D	1	1	1	1	1	
IC107	HC10102030	IC, LM6416E	1	1	1	1	1	
IC108	HC408100B0	IC, MC14081B	1	1	1	1	1	

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

REF. DESIG.	PART NO.	QUANTITY					DESCRIPTION
		U/C	N	E	A	T	
IC109	HC400100B0	1	1	1	1	1	IC, LC4001B
IC110	HC400100B0	1	1	1	1	1	IC, LC4001B
IC111	HC408100B0	1	1	1	1	1	IC, MC14081B
X101	HT309452B0	9	9	9	9	9	Transistor, 2SC945-P, Q
X109							
X110	HT107332A0	5	5	5	5	5	Transistor, 2SA733-P, Q
X114							
X117	HT405712B0	1	1	1	1	1	Transistor, 2SD571-L, K
X118	HT206052B0	1	1	1	1	1	Transistor, 2SB605-L, K
X119	HT206052B0	1	1	1	1	1	Transistor, 2SB605-L, K
X120	HT405712B0	1	1	1	1	1	Transistor, 2SD571-L, K
X121	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q
X122	HT309452B0	1	1	1	1	1	Transistor, 2SC945-P, Q
D101	HD20020050	11	11	11	11	11	Diode, 1S1588
D111							
D113	HD20020050	14	14	14	14	14	Diode, 1S1588
D126							
Q101	FQ04003010	1	1	1	1	1	Ceramic Capacitor, Vi, 400 kHz
VR101	RA04740020	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming
VR102	RA04740020	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming
VR103	RA05030110	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming
VR104	RA05030110	1	1	1	1	1	Variable Resistor, 470 kΩ, Trimming
VR105	RA022401AR	1	1	1	1	1	Variable Resistor, 220 kΩ, Trimming
RA101	BW0568301R	1	1	1	1	1	Resistor Comp. 68 kΩ x 10
RA102	BW0510301R	1	1	1	1	1	Resistor Comp. 10 kΩ x 8
R182	GM1148202R	1	1	1	1	1	Resistor 82 kΩ, 1/4 W ±1%
150	MM005001AR	1	1	1	1	1	DC Motor, Tone Arm Drive
163	ZZ424Z0110	1	1	1	1	1	P.W.B. Ass'y, PR Sensor
	BY050504AR			1			Voltage Selector

△

[H01-99] PACKING MATERIALS





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